Sydney L. Wright

FEBRUARY, 1908.

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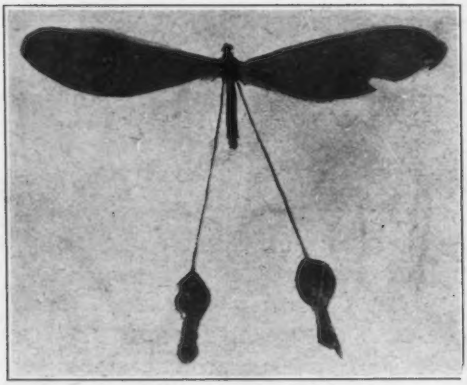

Halter americana Cockerell.

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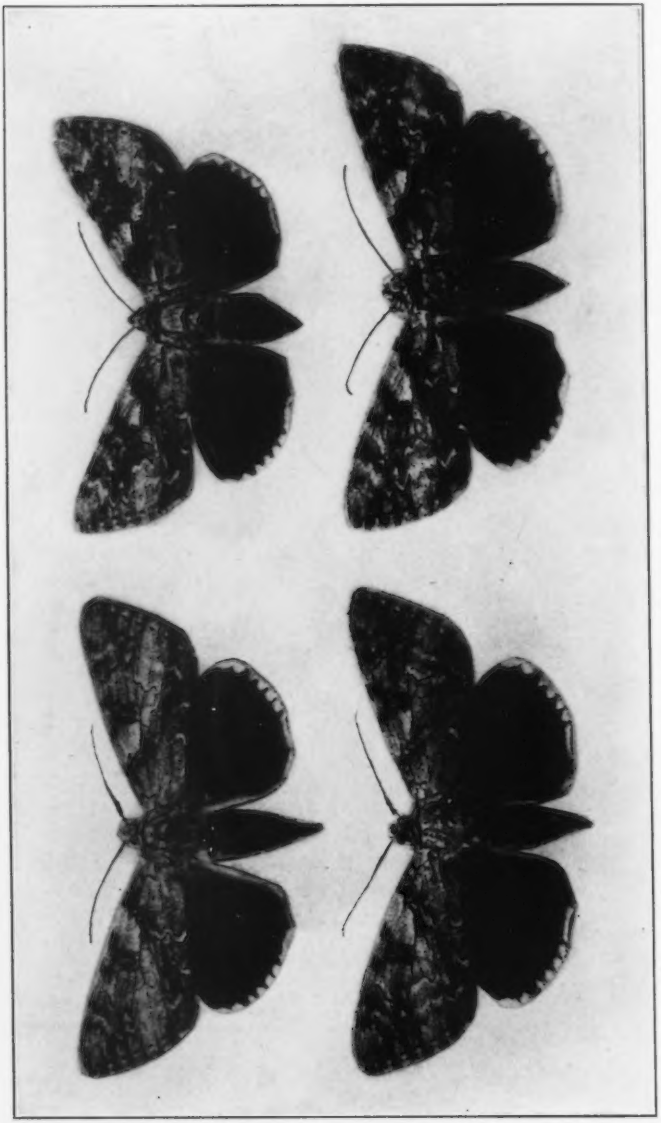

MALES CATOCALA DEJECTA STRECKER. FEMALES

ENTOMOLOGICAL NEWS

AND

PROCEEDINGS OF THE ENTOMOLOGICAL SECTION

ACADEMY OF NATURAL SCIENCES, PHILADELPHIA.

VOL. XIX. FEBRUARY, 1908. NO. 2.

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Notes on C. dejecta Strecker, and Other Species of Catocala from East River, Conn.

BY CHAS. R. ELY, Washington, D. C.

(Plate V)

In the original description of *C. dejecta* Strecker,* this species is said to have no basal dash on the primaries. Hulst also, in his monograph on the genus *Catocala*, makes the absence of the basal dash one of the important characteristics separating this species from others closely allied to it.

During July and August, 1907, the writer collected thirty-one specimens of a species of *Catocala* having black secondaries. Of these, eighteen males were unmistakably *C. dejecta*, but the remaining thirteen, females, differed from the published descriptions of this species in having in every case a decided basal dash. During the period mentioned the only other black-winged forms of *Catocala* captured were *epione* and *tristis*. It is therefore evident that the thirteen females of the above series were of the same species as the males—that is, *C. dejecta*—and that therefore the literature relating to this species is incomplete in that the male only has heretofore been described, and

* Bull. Brook. Ent. Soc., ii, 97, 1880; Bull. Brook. Ent. Soc., vii, 32, 1884.

that it is inaccurate in that the said description would exclude the female. The absence of a basal dash is, in this case at least, not a specific but a sexual characteristic.

In addition to the above facts it may also be stated that two females of *C. dejecta* were taken in the same locality in 1906, which have in each case a basal dash, and that a letter from Mr. Wm. Beutenmüller informs me that the only female of *C. dejecta* in the collection of the Am. Museum of Nat. Hist. also has a basal dash.

The males, in the series referred to, vary in expanse from 70 to 78 mm., with an average of 73.4 mm., with the exception of one individual which measures only 59 mm. The females vary from 66 to 79 mm. in expanse, with an average of 72.2 mm.

There is considerable variation shown by both males and females of this species. Some of the males agree quite closely with the descriptions of Strecker and of Hulst. In a number of instances there is, however, a faint indication of a tendency toward the formation of a basal dash, and in many cases there is also a slight apical shading. This apical shading Strecker states to have been absent in the three specimens which he had before him. The females are much more heavily marked with black, as a rule, than is the case with the males, and the apical shading is in many cases quite pronounced.

The most distinctive characteristic in both sexes is the very striking whitish area on the costal portion of the primaries just before the reniform. This area, which is much whiter than any other portion of the wing, extends from the t. a. line to the reniform, and is bounded below by a horizontal black shading, extending from the t. a. line to the point where the reniform and subreniform meet. This whitish patch is very conspicuous because of its contrasting black border and, together with the very dark reniform, affords an easy means of distinguishing this species from others somewhat resembling it in appearance.

The above locality yielded also a noteworthy variation of *C. gracilis* Edwards, of the form showing but little suffusion of the primaries, in which the median band of the secondaries

is linear and does not reach the costal margin, on the upper side of the wing. On the under side this linear band shows even more tendency to become obsolete. It is here broken at one point and but faintly indicated at another.

Another variation from the same locality is a form which appears to be intermediate between *unijuga* and *meskei*. It resembles the latter in size and in having the median band of the secondaries end before reaching the anal margin. The coloring of the primaries is, on the other hand, exactly the same as in *unijuga*.

The complete list of species of *Catocala* taken at East River, Conn., during 1906 and 1907, is as follows:

epione Drury.
vidua Smith and Abbot.
dejecta Strecker.
retecta Grote.
flebilis Grote.
robinsonii Grote.
obscura Strecker.
residua Grote.
tristis Edwards.
relicta Walker (=*bianca* Hy. Edwards).
" " var. *phrynia* Hy. Edwards.
" " " *clara* Beutenmüller.
cara Guenée.
amatrix Hübner (=*nurus* Walker).
" " var. *selecta* Walker.
marmorata Edwards.
concumbens Walker.
unijuga Walker.
briseis Edwards.
parta Guenée.
coccinata Grote.
ultronia Hübner.
" " var. *mopsa* Hy. Edwards.
" " " *adriana* Hy. Edwards.
ilia Cramer.
" " var. *conspicua* Worthington (=*uxor* Guenée).
piatrix Grote.
neogama Smith and Abbot.
subnata Grote.
cerogama Guenée.

paleogama Guenée.
" var. *annida* Fager.
" " *phalanga* Grote.
antinympha Hübner.
badia Grote and Robinson.
habilis Grote.
basalis Grote.
pretiosa Lintner.
amasia Smith and Abbot (= *sancta* Hulst.
cordelia Hy. Edwards.
similis Edwards.
fratercula Grote and Robinson.
micronympha Guenée.
præclara Grote and Robinson.
grynea Cramer.
gracilis Edwards.
" " var. *sordida* Grote.
" " " (linear band on secondaries).
amica Hübner (= *lineella* Grote).
" " var. *androphila* Guenée.
" " " *suffusa* Beutenmüller.
nubilis Hübner.

The Panorpidae (Scorpion-flies) of North Carolina, with Notes on the Species.

By Franklin Sherman, Jr.

Entomologist, State Department of Agriculture, Raleigh, N. C.

This group of Neuropteroid insects has received very little attention from entomologists, mainly due, no doubt, to the fact that they do not make themselves conspicuous and are of relatively little economic importance. The number of species to be found in any one locality seems to be small, though not so small as the ordinary collector might at first suppose. At Raleigh we have seven species recorded, while Mr. Manee has thus far located four at Southern Pines. Our complete list for the entire State includes fifteen species.

Our limited records to present indicate that the species are, at least in the majority of cases, single-brooded, a given species occurring only at a certain season for one, two, or three consecutive months. The exceptions to this are *Panorpa ruficens*,

P. venosa, and *P. virginica*, the data for which species indicate a possibility that they may be regularly or partially two-brooded.

The identifications are mainly on authority of Mr. Nathan Banks, to whom thanks are due. While the author has personally collected most of the species listed, a number of records have been obtained from other collectors, as shown in the text. The letters E, C, W, E-C, etc., are used to denote the geographical situation of localities, as east, west, central, east-central, etc. As a rule the more southern forms of life are found in the east and southeast parts of our State, while the more strictly northern forms are found in the west and northwest parts. Specimens are in collections of the Department of Agriculture at Raleigh, or in the collection of Mr. Banks, or collections of the other persons mentioned:

1. **Bittacus occidentis** Walk.

A fall species taken at *Raleigh* (E-C) by C. S. Brimley and G. M. Bentley. Mr. Brimley has taken it at lights. Early in September to middle of October.

2. **Bittacus pilocornis** Westw.

A spring and early-summer species taken both east and west, but not yet at Raleigh, *Havelock* (E), early in May, R. S. Woglum. *Black Mountains* (W), June, Wm. Beutenmüller.

3. **Bittacus punctiger** Westw.

Raleigh (E-C), early in June, R. S. Woglum. *Havelock* (E), late in May, 1907, F. Sherman. An early-season species.

4. **Panorpa americana** Rambur.

A late-season species, collected as yet at only two localities, but no doubt more widely distributed. *Raleigh* (E-C), middle of September to late in October; taken by Sherman, Bentley, and Brimley. *Southern Pines* (S-E-C), September and October, by A. H. Manee.

5. **Panorpa carolinensis** Banks.

Taken in *Black Mountains* (W), by Wm. Beutenmüller, in June.

6. **Panorpa confusa** Hagen.

A late spring and summer species, not yet taken in eastern section. *Raleigh* (E-C), mid and late May, by Brimley. *Highlands* (S-W), early in July, Sherman. *Blowing Rock* (N-W), late in June and August, Sherman.

7. **Panorpa lugubris** Swed.

This is an exceptional species. While its general appearance and structure mark it at once as a Panorpid, its *color* and *habits* are very unlike the other members of the family observed in the State. The wings, instead of being hyaline or yellowish, marked with black or brown, as is usual in the group, are glossy black, marked with white. The abdomen is red, and this combination of red and black colors, combined with the snout and the pinchers at the tip of the abdomen of the male, gives the insect a truly satanic aspect; yet, when examined without prejudice, it is a handsome species. While most Panorpids are found in low grounds, where there is a rank undergrowth, this one is found in grassy fields and pastures, especially the higher and drier portions. When persistently pursued it drops in the grass and feigns death or, at least, remains concealed. I have seen several specimens surrounding and feasting upon a dead grasshopper in a path. It is a fall species, apparently common every year, but more abundant in some years than others. Taken at *Raleigh* (E-C), from early in September to early in November, by Sherman, Brimley, and Bentley. *Southern Pines* (S-E-C), early in October to early in November, by Manee. *Faison* (E), middle of October, Sherman.

8. **Panorpa maculosa** Hagen.

A delicate species, thus far taken only in summer, in the mountains. *Hendersonville* (W), June, Sherman. *Highlands* (S-W), early in July, Sherman. *Blowing Rock* (N-W), late in July and August, Bentley and Sherman.

9. **Panorpa nebulosa** Westw.

A late-spring and early-summer species, which our records indicate to be of general distribution in the State. *Havelock* (E), early in May, Woglum. *Raleigh* (E-C), early in June,

Woglum. *Hot Springs* (W), Mrs. Slosson. *Lake Toxaway* (W), Mrs. Slosson. *Highlands* (S-W), early in June and July, Sherman. Not yet taken by Mr. Manee at Southern Pines.

10. **Panorpa rufa** Say.

I have been informed by Mr. Banks that the type specimen of this fine species is in a museum in England. It was taken in Georgia and, as the species had never again been recorded, was suspected of being a synonym or variation of some of the other better-known species. On December 25, 1902 (Xmas-day), which was a warm, bright winter day, I took a specimen at *Wilmington*, in the southeastern part of our State, near the coast, where the more typically southern forms of life are to be expected. Several years later Mr. A. H. Manee took it at *Southern Pines* (S-E-C) and, learning that it was a rarity, he has since noticed more closely and finds it common in its season, which runs from the middle of October to the middle of November. Mr. Manee has sold a number of specimens to public institutions and private collectors; so that the status of the species is now fully established.

11. **Panorpa ruficens** Rambur.

Our records indicate that this species occurs throughout the State, though not yet taken at Southern Pines by Mr. Manee, nor at Raleigh. The fact that we have it recorded in the months of April, May, June, and September, but not in July or August, indicates that it may be two-brooded. *Wallace* (S-E), mid and late April, Sherman. *Havelock* (E), early, mid, and late May, Brimley and Sherman. *Wilkesboro* (N-W), middle of September, Sherman. *Hendersonville* (W), June, Sherman.

12. **Panorpa signifer** Banks.

This species has been taken only in one western locality in our State, in midsummer. It is doubtless more or less distributed through our mountain region at least. *Blowing Rock* (N-W), August, Woglum and Sherman (two different years).

13. **Panorpa venosa** Westw.

This species may also be two-brooded. *Raleigh* (E-C), middle of September to middle of October, Brimley. *Southern Pines* (S-E-C), June, Manee.

14. **Panorpa virginica** Banks.

Until I sent Mr. Banks a series of this species from our western (mountain) section, he had seen it only from the vicinity of Washington, D. C. My records include four rather widely different mountain localities. The records indicate the possibility of two broods. *Hendersonville* (W), June, Sherman. *Highlands* (S-W), early in September, Woglum and Sherman. *Boone* (N-W), August, Sherman. *Blowing Rock* (N-W), August, Sherman.

15. **Panorpodes carolinensis** Banks.

Black Mountains (W), May 20th, Beutenmüller.

Description of a New Catocala.

By William Beutenmüller.

Catocala manitoba sp. nov.

Male and *Female.*—Head and thorax dull olive or ashen gray, with an olivaceous tint. Collar edged with brown posteriorly. Fore wings rather broad, olive gray or purplish brown, with an olivaceous tint. Transverse anterior line black, distinct, with a rather strong outward curve from the costa to a little above the inner margin, and preceded by a slight brown shade. Basal dash black, scarcely extending to the middle of the basal area, sometimes absent. Basal line black, dentate, and extending to the basal dash. Transverse posterior line black, narrow to the lower inflection, where it is broad. Tooth opposite the cell rather long, followed by a very short tooth; thence the line is almost even and somewhat concave in its course to the lower inflection. Subterminal line dentate, somewhat paler than the ground color, distinct, but not very contrasting. Space between the posterior and subterminal lines filled with dull reddish brown from a little below the costa to the inner margin. Subapical shade very vague or absent. Reniform brown, disk and outline pale. Subreniform rounded, resting on the reniform; brown and partly or wholly black-ringed. On the costa near the middle is a black mark. Hind wings yellow. Median band black, somewhat angulate, irregular, and meeting a black basal shade at the inner margin. Marginal band black and more or less broken before the anal angle,

where there is sometimes a detached spot. Fringes yellow, partly cut with black. Expanse 35 to 44 mm.

Habitat.—Cartwright, Manitoba, Canada, August to September (E. Firmstone Heath).

Types.—Collections: American Museum of Natural History, Rutgers College, and George J. Keller.

Closely allied to *C. præclara*. It may be readily known by the dark-olive or purplish gray-brown fore wings, with an olivaceous tint, and by the even brown space between the transverse posterior and subterminal lines. In *præclara* the fore wings are lichen green, with a silky lustre. The tooth opposite the cell in *C. manitoba* is long and followed by a very short one, while in *præclara* there are two long, sharp teeth. The hind wings of both species are similar in color and markings.

C. manitoba was erroneously considered by me to be the same as *C. titania* Dodge, and the note on the latter published by Mr. E. Firmstone Heath (Can. Ent., Vol. XXXIX, 1907, p. 376) belongs to *C. manitoba*. Recently I sent to Mr. G. M. Dodge a specimen of *C. manitoba* to ascertain if it was the same as his *C. titania*, and was informed that it is different. Mr. Dodge kindly compared my *manitoba* with the single existing type of *C. titania* in the collection of Mr. O. C. Poling. The remaining types of *C. titania* were destroyed by fire.

MR. E. T. CRESSON, JR., is working upon the dipterous family Ephydridae and would like to examine all the material possible, native or exotic. Present address, 141 Locksley Avenue, Oakland, Calif.

AT a recent meeting of entomologists at St. Louis, Mo., an organization was effected to be known as the "Heink Entomological Club," so named by unanimous desire in honor of Mr. Chas. L. Heink, an enthusiastic collector and student and owner of one of the largest collections of Lepidoptera in the city. A constitution and by-laws were adopted and a fund created for the foundation of a circulating entomological library. The following officers were elected: President, Chas. L. Heink; Vice President, Paul M. Schroers; Recording Secretary, Aug. Knetzger; Financial Secretary, A. C. Kelbly; Trustee, Geo. Graf; Sergt. at Arms, Noel Poepping. Meetings to be held regularly once a month.—AUG. KNETZGER, Secretary.

A Preliminary Systematic Arrangement of the Aleocharinae (Coleoptera) of the United States and Canada.

By A. Fenyes.

The following list is offered as an attempt to classify the Aleocharinae of America north of Mexico. The second edition of the Catalogus Coleopt. Eur. Cauc. et Arm. Rossic., has been used as a guide in arranging the genera common to both faunas, while the genera not occurring in the palæarctic region have been intercalated where they seemed to belong. Most of the genera created in Major Casey's "Observations on the Staphyl. groups Aleoch., etc.," St. Louis, 1906, have been omitted and their species transferred to the allied genera.

Nearly all the species described by Major Casey in his various papers on Aleocharinae have been enumerated, although undoubtedly a considerable number of them will prove to be synonyms. Many of these species are described from unique specimens and are probably only individual variations.

Only published genera and species are enumerated below. It is hoped that a corrected list may be printed from time to time. The list is necessarily imperfect, therefore corrections or additions will be appreciated by the compiler.

DINOPSIS.

1. *americana* Kr.
2. *myllaenoides* Kr.

GYMNUSA.

3. *brevicollis* Payk.
4. *variegata* Kiesw.

MYLLAENA.

5. *dubia* Gravh.
6. *intermedia* Er.
7. *minuta* Gravh.
8. *infuscata* Kr.
9. *fenyesi* Brnh.
10. *vulpina* Brnh.

BAMONA.

11. *carolinae* Csy.
12. *falliana* Csy.
13. *tenuissima* Csy.

GYRONYCHA.

14. *valens* Csy.
15. *texana* Csy.
16. *obscura* Csy.
17. *fusciceps* Csy.
18. *lineata* Csy.
19. *attenuata* Csy.
20. *pertenuis* Csy.
21. *fenyesi* Brnh.

OLIGOTA.

22. *apicata* Er.
23. *parva* Kr.
24. *pusillima* Gravh.
25. *pumilio* Kiesw.
26. *claviger* Csy.
27. *nugator* Csy.
28. *oviformis* Csy.

GYROPHAENA.

29. *affinis* Sahlb.
30. *bihamata* Thoms.
31. *fasciata* Marsh.
32. *vitrina* Csy.
33. *flavicornis* Melsh.
34. *uteana* Csy.
35. *gaudens* Csy.
36. *monticola* Csy.
37. *pacifica* Csy.
38. *lobata* Csy.
39. *involuta* Csy.
40. *antennalis* Csy.
41. *insolens* Csy.
42. *fuscicollis* Csy.
43. *modesta* Csy.
44. *gilvicollis* Csy.
45. *laurana* Csy.
46. *coniciventris* Csy.
47. *genitiva* Csy.
48. *sculptipennis* Csy.
49. *subpunctata* Csy.
50. *lacustris* Csy.
50a. var. *inconspicua* Csy.
51. *laetula* Csy.
52. *rhodeana* Csy.
53. *fustifer* Csy.
54. *centralis* Csy.
55. *perpolita* Csy.
56. *tenebrosa* Csy.
57. *subnitens* Csy.
58. *compacta* Csy.
59. *obesula* Csy.
60. *micans* Csy.
61. *egena* Csy.
62. *exilis* Csy.
63. *strictula* Er.
64. *californica* Csy.
65. *geniculata* Mäkl.
66. *corruscula* Er.
67. *humeralis* Csy.
68. *texanella* Csy.
69. *socia* Er.
70. *melania* Csy.
71. *pallidula* Csy.
72. *pinalica* Csy.
73. *minutissima* Csy.
74. *atoma* Csy.
75. *vinula* Er.
76. *ocularis* Csy.
77. *angularis* Csy.
78. *floridana* Csy.
79. *dissimilis* Er.
80. *peninsularis* Csy.
81. *flavicincta* Jek.
82. *rufa* Melsh.

PLACUSA.

83. *complanata* Er.
84. *atrata* Sahlb.
85. *tachyporoides* Waltl.
86. *angustula* Csy.
87. *despecta* Er.
88. *tacomae* Csy.

APHELOGLOSSA.

89. *rufipennis* Csy.

DIESTOTA.

90. *funebris* Shp.

THECTURA.

91. *cuspidata* Er.
92. *americana* Csy.

THECTUROTA.

93. *tenuissima* Csy.
94. *capilo* Csy.
95. *demissa* Csy.
96. *exigua* Csy.

OLIGUROTA.

97. *pusio* Csy.

HOMALOTA.

98. *plana* Gyllh.

SILUSA.

99. *alternans* Sachse.
100. *gracilis* Sachse.
101. *californica* Brnh.
102. *collaris* Csy.
103. *cribratula* Csy.

104. *decolorata* Csy.
105. *nanula* Csy.
106. *pasadenae* Csy.
107. *pusio* Csy.
108. *valens* Csy.
109. *vesperis* Csy.

PHYTOSUS.

110. *fletcheri* Csy.
111. *littoralis* Horn.

BRYOBIOTA.

112. *bicolor* Csy.

THINUSA.

113. *maritima* Csy.
114. *obscura* Csy.

BRYOTHINUSA.

115. *catalinae* Csy.

LIPAROCEPHALUS.

116. *brevipennis* Mäkl.
117. *cordicollis* Lec.

DIAULOTA.

118. *densissima* Csy.
119. *insolita* Csy.

AMBLOPUSA.

120. *borealis* Csy.
121. *brevipes* Csy.

ASTHENESITA.

122. *pallens* Csy.

LEPTUSA.

123. *haemorrhoidalis* Heer.
124. *americana* Brnh.
125. *atrocephala* Brnh.
126. *brevicollis* Csy.
127. *canonica* Csy.
128. *caseyi* Feny.
129. *opaca* Csy.
130. *seminitens* Csy.
131. *semirufa* Csy.

PHILOTERMES.

132. *fuchsi* Kr.
133. *pennsylvanicus* Kr.
134. *pilosus* Kr.

EURYUSA.

135. *obtusa* Lec.

BOLITOCHARA.

136. *notata* Mäkl.
137. *densicollis* Csy.
138. *californica* Csy.
139. *punctiventris* Csy.
140. *aspera* Csy.
141. *nigripennis* Csy.
142. *obsolescens* Csy.
143. *arcuata* Csy.
144. *bakeri* Csy.
145. *collaris* Csy.
146. *laxicornis* Csy.
147. *nigrina* Csy.
148. *brevicornis* Csy.
149. *minor* Csy.
150. *marginella* Csy.
151. *nanella* Csy.
152. *picta* Csy.
153. *laetula* Csy.
154. *suturalis* Csy.
155. *tristigma* Csy.
156. *texana* Csy.
157. *trimaculata* Er.

EUVIRA.

158. *debilis* Shp.

AUTALIA.

159. *puncticollis* Shp.
160. *elegans* Csy.

FALAGRIA.

161. *longipes* Woll.
162. *obscura* Grvh.
163. *dissecta* Er.
164. *iowana* Csy.
165. *ithacana* Csy.
166. *subsimilis* Csy.
167. *texana* Csy.

168. *angulata* Csy.
169. *caviceps* Csy.
170. *pinalica* Csy.
171. *arizonica* Csy.
172. *fontinalis* Csy.
173. *acomana* Csy.
174. *cingulata* Lec.
175. *tenuicornis* Csy.
176. *gracilis* Csy.
177. *parva* Csy.
178. *bilimbata* Csy.
179. *perexilis* Csy.
180. *hudsonica* Csy.
181. *laeviuscula* Lec.
182. *fissilis* Csy.
183. *impressifrons* Csy.
184. *robusta* Csy.
185. *minuscula* Csy.
186. *longicollis* Csy.
187. *occidua* Csy.
188. *lucida* Csy.
189. *asperula* Csy.
190. *picina* Csy.
191. *evanescens* Csy.
192. *collaris* Csy.
193. *parvipennis* Csy.

ANEUROTA.

194 *sulcifrons* Csy.

MERONERA.

195. *venustula* Er.
196. *montana* Csy.
197. *obliqua* Csy.

CHITALIA.

198. *intricata* Csy.
199. *scutellaris* Lec.
200. *granulosa* Csy.
201. *illustris* Csy.
202. *bilobata* Say.
203. *canadensis* Csy.
204. *nigrescens* Csy.
205. *partita* Lec.
206. *floridana* Csy.

BORBOROPORA.

207. *quadriceps* Lec.

MYRMECOPORA.

208. *vaga* Lec.

TETRALLUS.

209. *bicolor* Brnh.
210. *densepunctatus* Brnh.
211. *fenysi* Brnh.

TACHYUSA.

212. *objecta* Muls. & Rey.
213. *smithi* Csy.
214. *gracillima* Lec.
215. *americana* Csy.
216. *carolinae* Csy.
217. *cavicollis* Lec.
218. *obsoleta* Csy.
219. *parviceps* Csy.
220. *subalutacea* Csy.
221. *missouriana* Csy.
222. *pruinosa* Csy.
223. *dakotana* Csy.
224. *illini* Csy.
225. *ornatella* Csy.
226. *arida* Csy.
227. *faceta* Csy.
228. *vespertina* Csy.

GNYPETA.

229. *helenae* Csy.
230. *deserticola* Csy.
231. *punctulata* Csy.
232. *crebrepunctata* Csy.
233. *ventralis* Csy.
234. *floridana* Csy.
235. *bockiana* Csy.
236. *manitobae* Csy.
237. *brevicornis* Csy.
238. *nigrella* Lec.
239. *atrolucens* Csy.
240. *incrassata* Csy.
241. *leviventris* Csy.
242. *oregona* Csy.
243. *impressiceps* Csy.
244. *linearis* Csy.

245. *experta* Csy.
246. *curtipennis* Csy.
247. *abducens* Csy.
248. *shastana* Csy.
249. *horfordi* Csy.
250. *baltifera* Lec.
251. *alutacea* Csy.
252. *laticeps* Csy.
253. *placidula* Csy.
254. *majuscula* Csy.
255. *sparsella* Csy.
256. *lucens* Brnh.
257. *elsinorica* Csy.
258. *transversa* Csy.
259. *laticollis* Csy.
260. *mollis* Csy.
261. *pimalis* Csy.
262. *citrina* Csy.

TRACHYOTA.

263. *cavipennis* Lec.
264. *lativentris* Csy.

BRACHYUSA.

265. *raptoria* Woll.

DAYA.

266. *gigantula* Lec.

ATHETA.

267. *subtilior* Brnh.
268. *ambigua* Er.
269. *cambrica* Woll.
270. *sulcifrons* Steph.
271. *insecta* Thoms.
272. *melanocera* Thoms.
273. *elongatula* Gravh.
274. *aubei* Bris.
275. *gemina* Er.
276. *polaris* Brnh.
277. *angusticornis* Brnh.
278. *californica* Brnh.
279. *dichroa* Gravh.
280. *laevicollis* Mäkl.
281. *maritima* Mannh.
282. *proterminalis* Brnh.
283. *satanas* Brnh.
248. *fallaciosa* Shp.
285. *complana* Mannh.
286. *americana* Brnh.
287. *delicata* Brnh.
288. *pseudovilis* Brnh.
289. *sibirica* Mäkl.
290. *angustula* Gyllh.
291. *subdepressa* Brnh.
292. *arcana* Er.
293. *palustris* Kiesw.
294. *nitens* Mäkl.
295. *nigropolita* Brnh.
296. *amicula* Steph.
297. *festinans* Er.
298. *flaveola* Melsh.
299. *fulgida* Brnh.
300. *globicollis* Brnh.
301. *holmbergi* Brnh.
302. *impressicollis* Brnh.
303. *luctifera* Brnh.
304. *pennsylvanica* Brnh.
305. *polita* Melsh.
306. *pratensis* Mäkl.
307. *divisa* Mäkl.
308. *coriaria* Kr.
309. *sodalis* Er.
310. *pallidicornis* Thoms.
311. *nigritula* Gravh.
312a. v. *virginica* Brnh.
313. *euryptera* Steph.
314. *aquatica* Thoms.
315. *pertyi* Heer.
316. *castanoptera* Mannh.
317. *oraria* Kr.
318. *aspericauda* Brnh.
319. *bidenticulata* Brnh.
320. *crenulata* Brnh.
321. *crenuliventris* Brnh.
322. *fulgens* Brnh.
323. *fuscula* Csy.
324. *helenica* Csy.
325. *occidentalis* Brnh.
326. *planaris* Mäkl.
327. *truncativentris* Brnh.
328. *vasta* Mäkl.
329. *ventricosa* Brnh.
330. *dentata* Brnh.

331. *aemula* Er.
332. *granigera* Kiesw.
333. *abdominalis* Brnh.
334. *alutacea* Csy.
335. *gramiuicola* Gravh.
336. *picipennis* Mannh.
337. *subrugosa* Kiesw.
338. *marcida* Er.
339. *setigera* Shp.
340. *columbica* Brnh.
341. *cursor* Mäkl.
342. *fenyesi* Brnh.
343. *moesta* Mäkl.
344. *recondita* Er.
345. *parvula* Mannh.
346. *canescens* Shp.
347. *sordidula* Er.
348. *celata* Er.
349. *zosteræ* Thoms.
350. *baringiana* Brnh.
351. *sordida* Marsh.
352. *pygmaea* Gravh.
353. *parva* Sahlb.
354. *fungi* Gravh.
354*a*. v. *orbata* Er.
354*b*. v. *breviuscula* Mäkl.
355. *clientula* Er.
356. *luteola* Er.
357. *modesta* Melsh.
358. *pasadenæ* Brnh.
359. *analis* Gravh.
360. *cavifrons* Thp.
361. *filaria* Fvl.
362. *propera* Say.
363. *talpa* Heer.
364. *exilis* Er.
365. *arizonica* Csy.
366. *atriventris* Csy.
367. *borealis* Csy.
368. *brunneipes* Csy.
369. *comparalilis* Mäkl.
370. *exigua* Say.
371. *falsifica* Say.
372. *geniculata* Mäkl.
73. *indentata* Say.

374. *insignis* Csy.
375. *littoralis* Mäkl.
376. *lucida* Csy.
377. *minima* Say.
378. *ornata* Csy.
379. *pallida* Csy.
380. *pallitarsis* Kby.
381. *parallela* Csy.
382. *pedicularis* Melsh.
383. *quadripunctata* Say.
384. *semicarinata* Say.
385. *silacea* Er.
386. *tahoensis* Csy.
387. *ventralis* Csy.
388. *vestigialis* Er.
389. *wickhami* Csy.

PONTOMALOTA.

390. *opaca* Lee.
391. *californica* Csy.
392. *nigriceps* Csy.

ANEPSIOTA.

393. *quadricollis* Csy.
394. *terminalis* Csy.

TARPHIOTA.

395. *fucicola* Mäkl.
396. *pallidipes* Csy.

EURYPRONOTA.

397. *disdreta* Csy.
398. *scapula* Csy.

COLPOSURA.

399. *praelonga* Csy.
400. *parviceps* Csy.
401. *angusta* Csy.

SIPALIA.

402. *frontalis* Csy.
403. *impressula* Csy.
404. *parvipennis* Brnh.
405. *sparsipunctata* Brnh.

TOMOGLOSSA.

406. *luteicornis* Er.

CALLICERUS.

407. *canadensis* Csy.
408. *puberulus* Csy.

THAMIARAEA.

409. *americana* Brnh.

APTERONINA.

410. *schmitti* Wasm.

ASTILBUS.

411. *cavicollis* Csy.

TINOTUS.

412. *caviceps* Csy.
413. *imbricatus* Csy.
414. *trisectus* Csy.

HOPLANDRIA.

415. *lateralis* Mels.
416. *pulchra* Kr.

PLATANDRIA.

417. *mormonica* Csy.

TRICHIUSA.

418. *laevis* Csy.
419. *polita* Csy.
420. *transversa* Csy.
421. *compacta* Csy.
422. *parviceps* Csy.
423. *setigera* Csy.
424. *monticola* Csy.
425. *convergens* Csy.
426. *hirsuta* Csy.
427. *pilosa* Csy.
428. *atra* Csy.
429. *postica* Csy.
430. *virginica* Csy.
431. *robustula* Csy.
432. *rigida* Csy.
433. *discreta* Csy.
434. *varicolor* Csy.
435. *parvicollis* Csy.

ECITOPORA.

436. *nitidiventris* Brues.
437. *tenella* Wasm.

ECITONUSA.

438. *schmitti* Wasm.
439. *foreli* Wasm.

ECITONIDIA.

440. *wheeleri* Wasm.

DINOCORYNA.

441. *bisinuata* Csy.

MICRODONIA.

442. *occipitalis* Csy.

PLATYUSA.

443. *sonomæ* Csy.

ZYRAS.

444. *angustulus* Csy.
445. *caliginosus* Csy.
446. *cremastogastris* Wasm.
447. *fauveli* Shp.
448. *lautus* Csy.
449. *loricatus* Csy.
450. *lugubris* Csy.
451. *megalops* Csy.
452. *obliquus* Csy.
453. *planifer* Csy.
454. *rudis* Lec.
455. *schmitti* Hamilt.
456. *schwarzi* Wasm.
457. *seticornis* Csy.

XENODUSA.

458. *sharpi* Wasm.
459. *caseyi* Wasm.
460. *cava* Lec.
460*a*. v. *hirsuta* Wasm.
460*b*. v. *major* Wasm.
461. *montana* Csy.
462. *reflexa* Walk.
463. *angusta* Fall.

PHLOEOPORA.

464. *testacea* Mannh.
465. *corticalis* Grvh.
466. *ferruginea* Csy.
467. *oregona* Csy.
468. *sublaevis* Csy.

PACHYCEROTA.

469. *duryi* Csy.

BLEPHARRHYMENUS.

470. *validus* Csy.
471. *eximius* Csy.
472. *brevicornis* Csy.
473. *lacustris* Csy.
474. *gracilis* Csy.
475. *brendeli* Csy.
476. *monticola* Csy.
477. *lativentris* Csy.
478. *grandicollis* Csy.

CHILOPORA.

479. *americana* Csy.
480. *fuliginosa* Csy.

ITYOCARA.

481. *rubens* Er.

PAROCALEA.

482. *baicalica* Epp.

NASIREMA.

483. *humilis* Csy.
484. *inquilina* Csy.
485. *parviceps* Csy.

OCALEA.

486. *franciscana* Csy.
487. *grandicollis* Csy.
488 *vancouveri* Csy.

OCYUSA.

489. *asperula* Csy.
490. *brevipennis* Brnh.
491. *californica* Brnh.

DINARDILLA.

492. *liometopi* Wasm.

MYRMECOCHARA.

493. *debilis* Wasm.
494. *crinita* Csy.
495. *pictipinnis* Kr.

OXYPODA.

496. *exigua* Er.
497. *irrasa* Mäkl.
498. *minuta* Sachse.
499. *sagulata*, Er.
500. *frigida* Brnh.
501. *gatosensis* Brnh.
502. *opacicollis* Brnh.
503. *robusticornis* Brnh.
504. *subnitens* Brnh.
505. *tenera* Brnh.
506. *convergens* Csy.
507. *impressa* Csy.
508. *nubifer* Csy.
509. *saxatilis* Csy.
510. *glenoræ* Csy.
511. *nigriceps* Csy.
512. *lineata* Csy.
513. *hudsonica* Csy.
514. *fustiger* Csy.
515. *californica* Csy.
516. *mimetica* Csy.
517. *amica* Csy.
518. *sylvia* Csy.
519. *lucidula* Csy.
520. *stygica* Csy.
521. *renoica* Csy.
522. *iowensis* Csy.
523. *dubia* Feny.
524. *simulans* Csy.
525. *truncatella* Csy.
526. *virginica* Csy.
527. *obliqua* Csy.
528. *perexilis*, Csy.
529. *lacustris* Csy.
530. *nevadensis* Csy.
531. *fusiformis* Csy.

HYLOTA.

532. *ochracea* Csy.

DASYGLOSSA.

533. *prospera* Er.
534. *fenyesi* Brnh.

STICHOGLOSSA.

535. *corticina* Er.

ISOGLOSSA.

536. *arcuata* Csy.

ACHROMOTA.

537. *fusiformis* Csy.

THIASSOPHILA.

538. *angustiventris* Csy.
539. *asperata* Csy.
540. *laticollis* Csy.

CRATARAEA.

541. *suturalis* Mannh.

TERMITOGASTER.

542. *texanus* Brues.

DECUSA.

543. *expansa* Lee.

HOMOEUSA.

544. *acuminata* Mark.
545. *crinitula* Csy.

MYRMOBIOTA.

546. *crassicornis* Csy.

ECITOXENIA.

547. *brevipes* Brues.

MASEOCHARA.

548. *semivelutina* Solsk.
549. *decipiens* Csy.
550. *valida* Lee.
551. *californica* Csy.
552. *ponderosa* Csy.
553. *ruficauda* Csy.
554. *puberula* Csy.
555. *basalis* Csy.

ALEOCHARA.

556. *curtula* Goese.
556.*a* v. *lustrica* Say.
557. *crassicornis* B. & L.
558. *lata* Grvh.
559. *puberula* Klg.
560. *marion* Grvh.
561. *villosa* Mannh.
562. *fumata* Grvh.
563. *moerens* Gyllh.
564. *verna* Say.
564*a*. v. *languida* Sachse.
565. *bipustulata* L.
565*a*. v. *pauxilla* M. & R.
566. *speculicollis*, Brnh.
567. *gracilicornis* Brnh.
568. *densissima* Brnh.
569. *densiventris* Brnh.
570. *soror* Brnh.
571. *sparsicollis* Brnh.
572. *anthomyiae* Spr.
573. *maura* Sachse.
574. *rubripennis* Pettit.
575. *texana* Csy.
576. *fusicornis* Csy.
577. *sternalis* Csy.
578. *algonquina* Csy.
579. *medialis* Csy.
580. *tahoensis* Csy.
581. *kansana* Csy.
582. *pleuralis* Csy.
583. *ellipsicollis* Csy.
584. *americana* Csy.
585. *postpicta* Csy.
586. *montanica* Csy.
587. *thoracica* Csy.
588. *collusor* Csy.
589. *planiventris* Csy.
590. *bipartita* Csy.
591. *laramiensis* Csy.
592. *rubripennis* Csy.
593. *castaneipennis* Mann.
594. *robustula* Csy.
595. *glenorana* Csy.
596. *uvidula* Csy.
597. *rotundicollis* Csy.
598. *acomana* Csy.
599. *mannerheimi* Csy.
600. *insulana* Csy.
601. *defecta* Csy.
602. *affluens* Csy.
603. *sculptiventris* Csy.
604. *imbricata* Csy.
605. *idonea* Csy.
606. *salicola* Csy.
607. *densiventris* Csy.
608. *obsolescens* Csy.
609. *recta* Csy.

610. *bimaculata* Grvh.
611. *notula* Er.
612. *nitidicollis* Csy.
613 *nanella* Csy.
614. *innocua* Csy.
615. *deserticola* Csy.
616. *minuta* Csy.
617. *suffusa* Csy.
618. *acuminata* Csy.
619. *tibialis* Csy.
620. *sulcicollis* Mann.
621. *rugosa* Csy.
622. *debilicornis* Csy.
623. *cylindrella* Csy.
624. *maritima* Csy.
625. *pacifica* Csy.
626. *arenaria* Csy
627. *quadrifer* Csy.
628. *trilimbata* Csy.
629. *lucifuga* Csy.
630. *wickhami* Csy.
631. *nebulosa* Csy.
632. *disjuncta* Csy.
633. *fenyesi* Brnh.

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Notes on the Coleoptera of Placer County, Calif.

By Julia D. E. Wright and Karl R. Coolidge.

The following species of Coleoptera were taken in the vicinity of Towle, Dutch Flat, and Alta, small mining towns of Bret Harte fame. In 1903 the former writer spent June, July, August, and a part of September at Towle, and April and May of 1907 were spent by the latter at Alta. Placer County is in the foothills of the Sierra Nevadas, the elevation at Alta being about 4000 feet. *Pinus ponderosa* and *P. lambertiana* are characteristic trees of that region, and many species, particularly in the *Coccinellidæ*, were found on them. The blossoms of of *Anstostophylos* and *Ceanothus* were also rich in insect visitors. Considerable collecting was done at Lake Alta, a small lake below Alta, and around the banks Cicindelidæ were found abundantly. There is a good hotel at Lake Alta, and we would recommend this locality as an excellent entomological one. The following list is far from complete, but, from time to time, we hope to be able to add to it. We are much indebted to Drs. Blaisdel and Van Dyke for many identifications:

CICINDELIDÆ.

Omus californicus Esch. Fairly common in June.
" *rugipennis*. June.
" *sequoiarum* Cr. Rare; only one specimen in June.
Cicindela purpurea, var. *graminea* Schaupp. A single specimen.
" *lauta* Casey. One specimen.
" *oregona* Lec. Abundant. May to September.

CARABIDÆ.

Pterostichus ater Dej. Several taken in June.
" *tarsalis* Lec. Not rare in June.
" *protractus* Lec. Common.
" *californicus* Dej. Found abundantly under stones and logs.
" *vicinus* Mann. Several under stones.
" *inania*. One in June.
" *lustrans* Lec. June.
Amara sp.
Platynus subsericeus Lec. Abundant in July.
Anisodactylus consobrinus Lec. June to August.
" *piceus* Men. One taken under stone.

DYTISCIDÆ.

Agabus lugens Lec. Rare.

SILPHIDÆ.

Necrophorus nigritus Mann. Two in July.

COCCINELLIDÆ.

Hippodamia convergens Guer. Very abundant on pine.
Coccinella polita Casey. A few on pine.
Mysia hornii Cr. Only one taken.
Chilocorus fraternus Lec. Fairly common.
Exochomus californicus Casey. Not rare on manzanita.
Hyperaspis sp., near *dissoluta* Cr. Rare.
Scymnus sp. Common on pine.
Cleis minor Casey. Several in June.

DERMESTIDÆ.

Anthrenus occidens Casey. Abundant on the blossoms of manzanita.

TROGOSITIDÆ.

Trogosita virescens Fab. September, in decayed pine.

BYRRHIDÆ.

Amphicyrta dentipes Er. June.

DASCYLLIDÆ.

Cyphon concinnus Lec. Very common on lilac.

ELATERIDÆ.

Adelocera profusa Cand. Very rare; a single specimen on a pine-stump.
Alaus melanops Lec. Also rare. June.
Pityobius murrayi Lec. A few examples taken on wing near ditch.
Corymbites cruciatus, var. *edwardsia* Horn. May, June. Very variable.
" *tigrinus* Fall. A single specimen on yellow pine in May.
Melanactes densus Lec. Occasional in June.
Aplastus optatus Lec. June.

BUPRESTIDÆ.

Chalcophora angulicollis Lec. Common in June.
Dicerca hornii Cr. Two in June.
Trachykele opulenta Fall. A specimen of this rare species was taken in August on cedar.
Buprestis gibbsii Lec. June, July, August.
" *lauta* Lec. Fairly common. June to September.
" *fasciata*? Two in September.
Melanophima drummondi Kirby. Rare. August and September.
Anthaxia æneogaster Lap. Not rare.
Chrysobothris nixa. Common in September.
" *californica*. One *sp.* in September. Rare.

LAMPYRIDÆ.

Ellychinia californica Mots. Common in May and June, on oak. Very variable.
Podabrus comes Lec. June.
" *sp.*

MALACHIDÆ.

Listrus sp., near *pardalis* Casey.

CLERIDÆ.

Trichodes ornatus Say. Common in July on ceanothus.

LUCANIDÆ.

Platycerus californica. A single specimen in June.

SCARABÆIDÆ.

Canthon simplex Lec. Very common in May and June.
Aphodius pardalis Lec.
Hoplia dispar Lec. On ceanothus.
Dichelonycha crotchii Horn. Rare.
" *vicini.* June.
" *lateralis* Fall var. Common.
Cremastochilus pilosicollis Horn. One specimen in road.

CERAMBYCIDÆ.

Ergates spiculatus Lec. July.
Hylotrupes amethystinus Lec. Not uncommon in August.
" *ligneus* Fab. Common in June and July.
Brothylus gemmulatus Lec.
Calloides lorquini Buq. Rare.
Clytus tanifer Lec. Common in July.
Xylotrechus obliteratus Lec. One in July.
Neoclytus conjunctus Lec.
Ulochætes leoninus Lec. Two specimens on wing in August.
Toxotus vestitus Hald. Common in July. Very variable in size and color.
Pachyta spurca Lec. June and July.
Leptura obliterata Hald. Common everywhere in July.
" *tribalteata* Lec.
" *grossa* Lec. June. Rare.
" *laetifica* Lec. Fairly common in June.
" *chrysocoma* Kirby.
" *crassipes* Lec. June and July.
" *valida* Lec. Rare. One in July.
" *dolorosa* Lec. Also rare.
Atima dorsalis Lec. Several taken on wing.
Monohammus titillator Fab. Fairly common.
" *scutellatus* Say.

CHRYSOMELIDÆ.

Glyptoscelis illustris Cr.
Haltica bimarginata Say? On manzanita.
Timarcha intricata Hald. Rare.

TENEBRIONIDÆ.

Nyctoporis galeata Lec. Fairly common in June.
Coniontis robusta Horn. Not rare.
" *sanfordii*. One in June.
" *montanus*.
Eleodes dentipes Esch. Common in August.
" *parvicollis* Esch. Quite common.
" *cordata* Esch. Common in June.
" *scabicula* Lec. Common in June.
Iphthimus sublaevis Bland. Plentiful.
Centronopus parallelus Lec.
Cibdelis blaschkii Mann. June.
Helops opacus Lec.
" *punctatus* Gemm. One specimen under bark.

CISTELIDÆ.

Stenochidus cyanescens Lec. June. One specimen.
Cistela opaca Lec. Rare.

OEDEMERIDÆ.

Ditylus quadricollis Lec. Several on sand.
" *gracilis* Lec. Common in June.

MELOIDÆ.

Cantharis incommoda Horn. May and June.
" *stygica* Lec. Common.

OTIORHYNCHIDÆ.

Dyslobus segnis Lec. Plentiful in June.
Scythropus californicus Horn. Very common on pine.

CURCULIONIDÆ.

Pissodes costatus Mann. Rare.
Magdalis lecontei Horn. A few on pine.

I HAVE observed that *Lim. obsoleta* had three broods here the past season, in April, June, and September. The first and second brood of larvae of this quite scarce Lepidopter feed on *Salix fluviatilis* and the autumn larvae on *Populus fremontii*, our cottonwood.

During September I took five or six specimens of *Thecla ines*, a Mexican species, and rarely taken in Arizona or Southern California, so Mr. W. G. Wright has informed me. Two or three I took on alfalfa, and the others on sunflower.—DR. R. E. KUNZE, Phoenix, Arizona.

The North American Species of Chariessa (Coleoptera).

By A. B. Wolcott, Chicago, Ill.

Three examples of an undescribed species of the genus *Chariessa* have been in my collection for many years. Specimens of the four species and one color variety known to occur in our fauna are now before me, and demonstrate that the nondescript is specifically distinct.

Our few species may be separated by the aid of the following table:

A. Abdomen entirely red.

b. Thorax depressed, sides narrowing anteriorly, pubescence of thorax light red; elytra broadly dilated posteriorly. Length 7–14 mm. Cal., Tex., Mex. . . . . **elegans** Horn.

bb. Thorax convex.

c. Elongate, sides of prothorax parallel anteriorly, pubescence of thorax blackish; sides of elytra nearly parallel. Length 9 mm. Cal., N. J. . . . . **dichroa** Lec.

c. c. Robust, sides of prothorax strongly narrowing anteriorly, pubescence of thorax whitish (or fulvous); elytra broadly dilated posteriorly. Length 6-8.5 mm. Tex., N. J., Mex., Nicaragua, Panama, Guatemala, Brazil . . . . . **vestita** Chevr.

A A. Abdomen black.

d. Thorax moderately convex, narrowing anteriorly; elytra black. Length 7–13 mm. Fla., Ga., N. J., D. C,, N. Y., R. I., Mass., Pa., Ohio, Wis., Ont., Ill., Iowa, Neb, Kans., Ark., Ky., Tex. . . . . **pilosa** Forst.
Elytra black, lateral and sutural margins pale, femora usually pale . . . . . *var. onusta* Say.

d d. Thorax strongly convex, parallel anteriorly: elytra dark blue. Length 11–15 mm. Texas . . . . . **texana** n. sp.
Elytra dark blue, lateral and sutural margins pale . . . . *var.*

C. vestita Chevrolat (*Brachymorphus*), Col., Mex., Cent. ii, No. 150 (1835); Klug. (*Enoplium*), Abh. Berl. Akad., 1842, p. 363; tab. 1, fig. 10; Spinola, Mon. Clérites ii, p. 88; tab. 45, fig. 2 (1844); Gorham, Biol. Cent. Amer. iii, part 2, p. 187 (1882); Laporte (*Corynetes spectabilis*) Silberman's Revue Ent. iv, p. 50, No. 1 (1836).

In this beautiful species, which has erroneously been accredited to Spinola, the elytra and prothorax are blue, densely pubescent with erect whitish hairs, on each elytron before the middle there is a large transversely oval, velvety black spot;

the head, antennae (except the club), entire ventral surface of body and the legs are red, the pubescence of the parts is red; the mandibles, antennal club, tips of tarsal appendages and the tarsal claws are black. *Vestita* is a very broad species, the width equaling half the length.

Examples from the more tropical portions of its habitat show this to be a variable species in coloration, the tendency being for the bluish portions to become obscurely reddish and the pubescence more dense. In a Guatemalan specimen in my collection the elytra are violaceous, the prothorax dull aenous with a reddish tinge, the tarsi entirely red, and the mandibles black at tip only; the five apical joints of the antennae black, the pubescence of thorax and elytra fulvous and the velvety black spots of the elytra very large and round.

C. elegans Horn, Trans. Amer. Ent. Soc. iii, p. 87 (1870); Gorham, Biol. Cent. Amer. iii, part 2, p. 346; tab. 12, fig. 23 (1885); Rivers (*Lemberti*) Zoe vi, p. 396 (1894).

This species bears a slight resemblance to *C. dichroa*, but differs from it in many respects. *Elegans* is a much broader, more depressed species. It is a deep sanguineous red (the color fading in old material to a pale red, as described by Dr. Horn), the elytra blue with metallic lustre wanting; the antennae (the basal joint excepted) and the tarsi black. The prothorax in this species is much more coarsely and densely punctured while the elytra are less coarsely punctured than in *dichroa*.

C. dichroa LeConte (*Enoplium*) Rep. Exp. and Surv. 1857, xii, p. 48.

This species may be easily recognized by its elongate form, finely punctured thorax and coarsely punctured elytra. The coloring in this species is the same as in *C. elegans*, with the following exceptions: the blue of the elytra has a sub-metallic lustre, the prothorax is more shining, the legs and antennae are entirely black, while the scutellum is red, the pubescence of the head and prothorax is blackish.

Dichroa is by far the rarest species and according to Mr. Hopping the larvae of the two species seem to be indistinguishable. Both species breed in the same log—that of *Quercus douglasii* or Sierra foot-hill oak (at Kaweah, Cal.), and as this oak does not grow much above 2000 feet, Mr. Hopping thinks

it probable that the species may in some localities breed in oaks of a different species. For this species and a fine series of *C. elegans* I am indebted to Mr. Ralph Hopping.

C. pilosa Forster (*Lampyris*), Nov. Spec. Ins. Cent. i, p 40 (1771); Olivier (*Enoplium*), Enc. Meth. vii, p. 490 (1782); Say (*Enoplium*), Amer. Ent. iii, tab. 41, fig. 5 (1828); Klug (*Enoplium*); Abh. Berl. Akad., 1842, pp. 104 and 360 *nec.*, p. 113; Spinola (*Pelonium*), Mon. Clérites i, p. 356; tab. 34, fig. 5 (1844); LeConte (*Pelonium*), Ann. Lyc. Nat. Hist., N. Y., v, p. 32 (1849); Gorham (*Pelonium*), Trans. Ent. Soc., Lond., xxv, p. 417 (1877); Wickham, Can. Ent., xxvii, p. 252 (1895).

C. pilosa var. *onusta* Say (*Enoplium*), Amer. Ent. iii; tab. 41, fig. 1 (1828); Say (*E. marginatum* ‖), Journ. Acad. Nat. Sci., Phila., iii, p. 188 (1823); LeConte (*Pelonium*), Ann. Lyc. Nat. Hist., N. Y., v, p. 32 (1849); Wickham, Can. Ent., xxvii, p. 252, fig. 20 (1895).

Chariessa pilosa and its color variety are so well known and easily recognized as to render needless the giving of any characters other than those contained in the table of species.

C. texana n. sp.

Elongate, black, thorax ferruginous, apical margin each side of middle with rounded black maculation, sometimes united forming a short, broad, transverse apical band. Head and thorax coarsely and very densely punctured, pilose with long, erect yellowish hairs. Thorax slightly longer than broad, convex, disc feebly longitudinally impressed, sides parallel anteriorly. Elytra dark blue, sides nearly parallel, convex, moderately shining, the sutural margins strongly costate, the costae smooth and broad, each elytron with four more feebly developed costae, punctuation very coarse and dense at base, less deep and coarse toward apices, humeri very prominent, impunctate. Legs densely clothed with very long semi-erect hairs. Length 11–15 mm.

Sweetwater, Nolan County, Texas. Three specimens kindly given me by Mr. Willard Wooding.

This species is most nearly allied to *C. pilosa*, from which it is distinct by the different form of the thorax and by the form of the entire insect, the elytra are more coarsely punctured and moderately shining, and it is a much larger species; the colors of thorax and elytra are also greatly different from those of *pilosa*. The variety of this species is identical with the type excepting that the elytra are very narrowly margined, the pale margin being about half as wide as in *C. pilosa* variety *onusta*.

The North American Species of the Genus Erebia (Lepidoptera).

By Karl R. Coolidge.

The species comprising the genus *Erebia* are all arctic in habitat or are found at high elevations in temperate regions. For this reason many of our species are rare in collections. The writer has been fortunate in obtaining most of the species, but several descriptions have been taken from figures. The following compose our fauna:

1. **fasciata** Butl.

♂—Wings above immaculate dark brown. Beneath paler, with a wide, grayish submarginal band on both wings, not quite reaching to the lower margin of the primaries; a more or less obsolete basal band; bands bordered with black.

♀—A reddish patch on primaries and a narrow band on secondaries above. Exp. 1.80-2 inches.

Habitat.—Alaska and Arctic America.

2. **discoidalis** Kirby.

Primaries reddish brown, with a triangular, obscure, reddish, discoidal stripe from base to posterior margin; costa grayish. Secondaries brown. Beneath primaries as above, tipped with gray. Secondaries beneath indistinctly marbled and clouded with gray and whitish; fringes whitish and brown alternately; body brown; antennae annulated with white. Exp. 1-1.50 inches.

Habitat.—Boreal America; Hudson Bay; Canada, Alberta.

3. **rossi** Curt.

Superior surface of wings dark reddish brown. On primaries toward apex two ocellated spots close together. Beneath as above, the ground color paler; on primaries the outer portion is a pale band containing a series of white points. Exp. 2 inches.

Habitat.—Boreal America; Hudson Bay; St. Lawrence Bay.

4. **disa,** var. **mancinus** D. and H.

Upper surface of wings blackish brown. On primaries a reddish submarginal band in which is contained three or four black spots, pupiled with white, the upper two more distinctly so. Primaries beneath as above. Under surface of secondaries brown, densely powdered with grayish scales; a broad, more or less distinct grayish-black median band, deeply indentated toward base, regularly sinuate outwardly; base grayish; a submarginal row of blackish lunules, sometimes obsolete; a whitish spot on secondaries; at costal margin and on outer edge of band a whitish, triangular patch. Exp. 1.50 inches.

Habitat.—Alaska; Rocky Mountains; British America; Lacombe, Alberta, Canada.

5. **vidleri** Elwes.

Wings above blackish brown; on primaries a yellow-brown band enclosing three small, dark-brown ocelli, the upper two pupiled with white. On secondaries a band extending about half-way across the wing, containing two brown spots, the upper small.

Habitat.—Seton Lake, near Lilloet, on the Fraser River, British Columbia.

6. **tyndarus,** var. **callais** Edw.

♂—Wings above brownish, with a broad, transverse, castaneous band on outer two-thirds of primaries, more or less distinct. At apical end is contained a black, duplex, bipupiled spot. Secondaries with a series of three small, black points, each in a castaneous ring; fringes brown. Primaries beneath castaneous except costal edge and apex, which are gray; markings as above. Secondaries grayish, with brownish scales; disk crossed by a deeply crenated line, anterior to which, near base, is another line nearly obsolete; spots as above. Body brown above, below dark gray; antennae brown, luteous below; club fuscous above, yellow at tip.

♀—Paler, the spots on secondaries sometimes more or less wanting. Exp. 1.50 inches.

Habitat.—Colorado; New Mexico.

7. **epipsodea** Butl.

♂—Upper surface of wings dark brown; generally three black, ocellated spots on primaries, broadly surrounded with reddish brown, widening anteriorly and narrowing in the submedian interspaces. A similar series on secondaries, three or four in number, surrounded with reddish brown. Primaries beneath as above, third ocellus obsolete or represented by a point. Secondaries beneath with outer margin paler and a curved median, blackish band; spots repeated, but reduced. Body and palpi brownish black; antennae and club brown above, buff below, fulvous at tip. Exp. 1.50 inches.

♀—Of same size; ocelli enlarged.

Var. *brucei* Elwes.

The fulvous patch on primaries divided into four parts by the subcostal and discoidal nervures. Above third median nervure a small, fulvous patch which contains two black dots, the white pupils obsolete. Beneath as above. I regard this as a local aberration.

Habitat.—New Mexico to Alaska at suitable elevations; common in Montana, Eastern Washington, and British Columbia.

Var. *brucei*, Summit County, Colorado, 12,000 feet; Fort Qu'appele, Assiniboia.

8. **sofia** Strecker.

Above both wings are dark brown, with an even submarginal band of rusty-yellow spots on primaries and four or five concolorous spots on secondaries; a tint of same color in cell of primaries. Beneath the primaries are reddish, pale in cell, with band repeated, but paler. Secondaries also paler, the spots yellowish white, with scales of fulvous about the edges. Exp. 1.50 inches.

Var. *alaskensis* Holland.

The number of light spots reduced, both above and below; usually three on primaries above and below, and two on inferior surface of secondaries.

Habitat.—Fort Churchill, Hudson Bay; Yellowstone Park, 7000 to 8000 feet; British Columbia; Wyoming; Colorado.

Var. *alaskensis*, Eagle City, Forty Mile Mission, Alaska; Yellowstone Park.

I take *sofia* to be a variety of the Siberian *maurisius* Esp., and it is also close to *E. kefersteinii* Er., another Siberian species.

9. **magdalena** Strecker.

Uniformly and entirely dark blackish brown on both surfaces of the wings, except the outer two-thirds, beneath which is a shade lighter. Exp. 2 inches.

Habitat. Colorado, 10,000 to 14,000 feet.

10. **youngi** Holl.

Above both wings are dark brownish black; on primaries a wide submarginal band of red spots, pupiled with black. On secondaries a concolorous series of rounded spots, not confluent as on primaries. Beneath paler; the spots of primaries more confluent, but less sharply outlined. Secondaries crossed by a broad-curved, median, dark band, defined on both sides by narrow black lines. External to this a paler band, more or less dusted with grayish scales. Succeeding this a moderately wide, dark-brown, even marginal band; pupils of above repeated.

Less dark upon upper surface of wings, the ocellated red spots more strongly developed. Exp. 1.50 inches.

Habitat. Forty Mile Mission, Alaska.

DR. WM. A. NASON has sold his collection of insects to the State Laboratory of Natural History, University of Illinois, Urbana, Ill.

Oviposition of Bibio albipennis Say.

By Arsene Girault, New Richmond, Ohio.

In early April, 1907, this species was very common at Olden, Missouri, occurring on various fruit trees in the large apple and peach orchards of the Ozark region. They were found as isolated examples clinging to the foliage, but on one occasion in the afternoon a single small swarm was observed at the edge of a peach orchard. They were flying erratically, occasionally alighting on the foliage of nearby trees. The species was present for at least eight or ten days, and a female deposited many eggs in a small box in which she was confined. Continued cold spells, however, interfered with their breeding and the eggs failed to hatch.

On May 17, 1907, along the Ohio River, at New Richmond, Ohio, many single examples of this species were again met with on the foliage of apple, peach and other trees. Three gravid females were captured on that date and confined during the afternoon of the same day in a jar containing moist soil. As expected, they had disappeared under the soil by the morning of the 19th, and early in the morning of May 22d the egg-masses were found at the bottom of the jar under 65 mm. of soil, each mass partly enveloping the now dead body of the female.

The eggs were deposited in a more or less regular mass, side by side and on their ends, the rows often over-lapping, and each mass averaged 2211 eggs by actual count. The eggs are of the usual dipterous form and color, being oblong with both ends rounded, and with one side slightly convex, and the other slightly concave. Their color is sordid yellowish white, they are translucent, opaque at the ends, their contents granulated, and surface apparently simple. In structure they are very delicate, To the naked eye they are minute and inconspicuous when single, and the whole mass is not wider than 6 or 7 millimetres. The eggs average 0.558 mm. in length. They die when taken from their positions in the soil and exposed to the atmosphere.

I am indebted to Mr. D. W. Coquillett, U. S. National Museum, for determination of the species.

A new Anisota from Arizona (Lepidoptera Heterocera, Ceratocampidae).

By C. R. Biederman.

A. skinneri n. sp. ♂.

Form that of *A. virginiensis*. Antennae, head, thorax and abdomen a deep rich ochreous yellow. Primaries reddish brown, spot on discal area silver white, 1 mm. square, basal corners slightly rounded; 4 mm. from the external margin and parallel to it runs a narrow bluish band. Costal margin marked by a dull brown band 1 mm. wide. Secondaries a rich purple brown, somewhat lighter at the costal margin, deepest at the base. Under side: abdomen, two-thirds its length from thorax nearly naked, grayish brown; primaries same as upper surface except limbal area, which is a dull grayish brown, discal spot dull white; secondaries dull grayish brown, with basal patch of purple brown. Expanse 53 mm. The female is much larger, expanse 71 mm., of lighter color and marked in the same manner.

Life-history of *Anisota skinneri*: Eggs found on August 20th hatched September 1st–5th inclusive. Young larvae grayish-brown, naked, 2 mm. Commenced to feed 4 days after emerging. Changed to reddish-brown September 10th. Changed to dull red September 13th. September 16th skin shows tiny ridges like paper crumbled up and smoothed out again. This form of skin stays to time of pupation. First pupation September 29th, last October 5th. No moulting whatever; no spinning of cocoon. Chrysalid naked in the loose ground 2 to 3 inches under surface, sandy earth preferred with a layer of dead leaves on top. They cease feeding and wander aimlessly around cage, color fades to a reddish clay and anal portion and head shrink towards center with slight swells. My experience of last year teaches me that this larva when freely handled will wander about, feed very irregularly and little, and finally die; of 22 I saved only 2. This year they were not handled and all but one went underground. Food, black (live) oak.

Average length of grown larvae 56 mm. The emerged larva shows no spines at first, but elevated dark punctures where they grow afterwards. Adults emerged last year August 5th.

In *Science* for January 24, 1908, is a brief statement of the aim and methods of the Concilium Bibliographicum.

ENTOMOLOGICAL NEWS.

[The Conductors of ENTOMOLOGICAL NEWS solicit and will thankfully receive items of news likely to interest its readers from any source. The author's name will be given in each case, for the information of cataloguers and bibliographers.]

To Contributors.—All contributions will be considered and passed upon at our earliest convenience, and, as far as may be, will be published according to date of reception. ENTOMOLOGICAL NEWS has reached a circulation, both in numbers and circumference, as to make it necessary to put "copy" into the hands of the printer, for each number, three weeks before date of issue. This should be remembered in sending special or important matter for a certain issue. Twenty-five "extras," without change in form, will be given free, when they are wanted; and this should be so stated on the MS., along with the number desired. The receipt of all papers will be acknowledged.—ED.

PHILADELPHIA, PA., FEBRUARY, 1908.

We were pleased to learn from the minutes of the Secretary-Treasurer and other sources, that the Chicago meeting of the Entomological Society of America was a great success, and that the attendance was large. We also learned from one of our correspondents that Dr. James Fletcher of Ottawa, First Vice-President, conducted the meeting in his usual inimitable happy manner. It is an excellent thing to have officers who will make long journeys at a sacrifice when duty calls. The new officers are an honor to the Association, being men of ability and eminence, and their names shed lustre on the infant Society. It is to be hoped that the next meeting to be held in Baltimore will be equally brilliant as to attendance and papers, and that the same policies and precedents that were so successful in Chicago will be adopted in Maryland. Our prediction that the Society would grow and flourish like a green bay tree has been fulfilled so we are happy.

A CORRECTION.—ENT. NEWS, p. 43, 1907, line 33, for S. A. Rohmer read S. A. Rohwer. I choose this opportunity to record *Pterochilus 5-fasciatus* Say, from Pueblo, Colo., July 31, 1907 (G. M. Hite). As far as I know the genus has not been been recorded from Colorado.—S. A. ROHWER, Boulder, Col.

Notes and News.

ENTOMOLOGICAL GLEANINGS FROM ALL QUARTERS OF THE GLOBE.

I SEND you the record of the capture of a specimen of *Calpodes ethlius* Cramer. This insect was once taken at West Farms, N. Y., about 40 years ago, I believe. The specimen referred to was taken by me here in Washington, D. C., over a bed of Canna on September 19, 1903.—CHAS. R. ELY.

MR. O. W. BARRETT is back in the Bureau of Plant Industry of the U. S. D. A., after a very pleasant summer and autumn among the cacao plantations of Trinidad, B. W. I., in the study of cacao pests and diseases for the Agricultural Society of Trinidad and Tobago.

IF Mr. Paul is correctly quoted, we would like to suggest that some of the wealthy society butterflies contribute a fund toward the promulgation of elementary knowledge about the metamorphoses of insects. The price of one of these swell balls would create a fund to perpetuate this journal for all time, whereas the ball lasts but a few hours. Of course, the price given in the newspaper account is greatly exaggerated:

"'A lie. The whole story of the live butterflies being loosed at the ball which I gave in Horticultural Hall is a lie. It is made out of the whole cloth and there is nothing whatever to it.'

"In this wise did James W. Paul, Jr., emphatically stamp this story, which appeared first in Philadelphia and later in papers throughout the country, and which has occasioned not only amusement but indignation in some quarters here.

"'It is absurd to think of such a thing being done,' continued Mr. Paul, 'for if butterflies had been sent from such distant parts as those ridiculous stories had it they would have been transformed into larvæ and caterpillars before their arrival here. It is all absolutely untrue.'

"Word came echoing back from New York yesterday that '15,000 educated butterflies had blazed the way for Miss Mary Astor Paul's entrance to society, and the entire ball cost $100,000.'

"Another account had it that 'the *piece de resistance* came when, at the height of the festivities, 500 beautiful butterflies, gathered from all corners of the earth, were released over the heads of the magnificently gowned and jeweled women and the bravely dressed men who had gathered as Mr. Paul's guests.'"

A NEW PUBLICATION, THE JOURNAL OF ECONOMIC ENTOMOLOGY, official organ of the Association of Economic Entomologists. Editor, E. Porter Felt, Albany, N. Y, State Entomologist, New York; Associate Editor, A. F. Burgess, Washington, D. C., Secretary Association Economic Entomologists; Business Manager, E. Dwight Sanderson, Durham N. H., Director N. H. Agricultural Experiment Station; Advertising

Manager, Wilmon Newell, Baton Rouge, La., State Entomologist Lousiana. Advisory Board: L. O. Howard, Chief of Bureau of Entomology, U. S. Dept. Agr.; James Fletcher, Entomologist, Dominion of Canada; H. T. Fernald, Professor of Entomology, Mass. Agr. College; S. A. Forbes, State Entomologist, Illinois; H. A. Morgan, Director Tenn. Agr. Experiment Station; Herbert Osborn, Professor of Zoology, Ohio State University.

At the twentieth annual meeting of the Association of Economic Entomologists held at Chicago, December 28, 29, 1907, a stock company composed of members of that association was formed for publishing a Journal of Economic Entomology, and arrangements were made for the immediate issue of the publication.

An agreement was entered into between this company and the association whereby the Proceedings of the Association of Economic Entomologists are to be published exclusively in this journal.

The Association of Economic Entomologists includes in its membership practically all the official economic entomologists of the world, nearly three hundred in number. Its proceedings have been published as a bulletin of the Bureau of Entomology, U. S. Department of Agriculture, and have furnished the medium for publishing a large number of papers giving the results of investigation in economic entomology, many of which would not have found ready publication elsewhere. These proceedings will now appear in the Journal of Economic Entomology, making the first two numbers each year. The last four numbers will contain similar contributions, notes, news, reviews of more important publications, etc. Ever since the untimely suspension of Insect Life, over fifteen years ago, there has been no place for the publication of short notices or longer reports upon investigations and experiments in economic entomology, save the bulletins and reports of the U. S. Department of Agriculture, the Agricultural Experiment Stations, and the agricultural press, all of which have their distinctive fields and limitations, precluding the publication of much worthy material.

During the last ten years the science of economic entomology has advanced in a most phenomenal manner. The general public has had frequent occasion to acknowledge its debts to applied entomology, and the number of workers and the quantity and quality of work have increased in a manner far beyond expectation. The advent of the San Jose scale throughout the eastern United States, the tremendous losses occasioned by the Mexican cotton-boll weevil in Texas and Lousiana, the destructive work of the gipsy and brown-tail moths in New England, as well as many other important pests throughout America and the newly settled countries of Australia and South Africa, have turned attention to the work of the economic entomologist and its economic value as never before. Even more striking has been the work in the United States and South Africa upon the relation of ticks to the diseases of domestic animals and their control, and greatest of all have been the discoveries that

malaria and yellow fever are carried by mosquitoes and the magnificent demonstrations of the application of this knowledge to the saving and safeguarding of human life.

The Journal of Economic Entomology will be issued bimonthly, February to December inclusive, each issue to contain fifty to one hundred pages, the size to be limited only by the financial support received and the papers offered. In size of page and style it will be uniform with the Proceedings of the Association of Economic Entomologists of former years (Bulletins of Bureau of Entomology, U. S. Dept. Agr.). The subscription price is $2 per year, in advance, plus 30 cents postage for foreign subscribers.

THE NOSE OF THE MOSQUITO.—STORIES FROM FLORIDA ABOUT THE INSECT'S LONG RANGE SCENT FOR BLOOD.—There is one fact to be taken into account in the natural history of the mosquito of which there seems to be a great deal of ignorance. I allude to the wonderful smelling power of that world-embracing insect. Let me begin by relating some facts which will throw some light on the subject, and doubtless surprise some readers.

I once sailed down the Florida coast bound for Key West. We were on a little schooner. The crew were two, the passengers likewise two. About the middle of the afternoon we arrived off one of the points of the coast, which taken together constitute Cape Sable. A river empties into the Gulf there, known as Shark River. It is one of the most notorious haunts of mosquitoes on the whole coast. The crew decided that it would not be prudent to pursue our journey that evening, and so we anchored. We were about a mile from the shore, which is there covered with tall mangrove trees. We prepared our supper and after it was eaten we camped on the deck, or in the cabin as pleased us. The time was June and the wind was blowing gently from the east in from the sea. There was not one mosquito. In the morning we cooked our breakfast and ate it. Wind either a calm, or gentle from the east. No mosquitoes. Then something happened—the wind came out from the west or northwest. Instantly the mosquitoes came out. At first one or two, then more and more. As soon as possible we got up our sails and proceeded to sea. The explanation is simple. As long as the wind blew from the shore to us, the mosquitoes were unconscious of our presence; when the wind commenced to blow from us to the insects they became aware of the existence of warm blood, and they lost no time time in going after it.

One night in the summer in Florida I camped in a wagon with a companion. The wagon was in a road which ran north and south. The wind was from the east, thus blowing directly across the wagon. I slept on the west side. The mosquitoes to the west of us were attracted to us by the smell of our blood. They came to us, but all stopped at me. My companion got no mosquitoes, got no bites at all, while I suffered a sleepless night.

Perhaps it is not generally known that the Florida coast is lined with lighthouses. One of these lighthouses north of Key West is called Sombrero. It is a frame of iron on which the dwelling and the lantern stand, and is five and one-half miles from the swampy, mangrove lined shore. This shore is the breeding place and home of mosquitoes. Probably no unprotected human being could survive there for a single night. I know well a couple who kept this light for a considerable period. Their experience and their testimony on the subject on which I am writing should be conclusive, so I questioned them first, as to the distance that mosquitoes can smell human blood. They said that sometimes they were overwhelmed with mosquitoes. Secondly, but when? Was it when the wind was blowing from the land? Were the insects blown to you? The answer was that the inroads of the insects were only when the wind was blowing from the lighthouse to the shore. And the keeper said "not when the wind was blowing directly at right angles to the shore." I suggested that there might be a pond a little out of the nearest point of the shore. As to that he did not know, for I think he said he had never visited the shore.

It seems evident enough that if the mosquitoes were blown over, only those embraced in the narrow zone of the width of the lighthouse would ever get to the house, and as the wind never blows very long in one exact direction, varying and zigzagging about, no mosquitoes would ever get over the five and a half miles of water. The idea is absurd. Either the insects go to the lighthouse on purpose or they don't go at all.

Now, if a mosquito can smell warm blood five and a half miles, how much farther can he smell it? The common route in pleasant weather from the coast to Key West is to sail down along the shore to Boca Grande. Then the vessel steers straight for its destination, a distance of eighty miles. The route recedes from the land, and the distance becomes as great as thirty miles. The course is regulated by sounding and the vessel is not allowed to get beyond a certain depth of water.

I am well acquainted, and have been for years, with two men who have sailed across this course many times, regularly making trips from my house to Key West. They say that it has happened to them time and again, that they would leave Boca Grande in the evening with a westerly wind. One of them would lie on his blanket on deck and sleep, while the other sailed the boat. There would be no mosquitoes on the boat. The sleeper would sleep undisturbed. But after a while mosquitoes would appear and disturb the sleeper. When the wind began to come from the east, or off shore, the insects would disappear. Those already present, of course, would be either killed or quieted with blood after the way of the tribe. You will take notice that these observations were made by keen observers with their eyes wide open, and repeated over and over again. I published these facts twenty years ago. Last summer I heard of an entomologist's visit to our coast and of his investigation concerning this subject.—JOHN G. WEBB, Osprey, Fla.

TRANSPARENT wings, colored or uncolored, detached from the body of an insect can be placed between two lantern slide covers and used as lantern slides, a few minute drops of glue serving to hold the wings in place. Any necessary lettering can be put on bits of Dennison's adhesive transparent tape, or of sheet gelatine, and inserted between the two glass covers before binding them together in the usual way.—P. P. CALVERT.

EREBUS ODORA IN WISCONSIN.—The small village of Oostburg can be found on the map forty-two miles north of Milwaukee and ten miles south of Sheboygan in Sheboygan County, Wisconsin. On July 27, 1898, I went out on my usual night trip to catch moths near the woods, where I sugared some tree-stems. Hundreds of insects appeared, of different sizes, and one was a very large one. Waiting for a favorable opportunity to strike with my net, I was rewarded with an almost perfect female *Erebus odora*.

On the night of July 22, 1907, I imagined that two bats were flying near my sugared trees for the purpose of devouring the moths which covered the tree-stems. Directing the red light of the bicycle-lamp toward the tree-stems, I saw a male and female *Erebus odora* feasting on the sweet I had provided. I caught the female that same night and July 24th I captured the male. Both specimens are almost perfect. On the night of July 27 and 29, 1907, I caught two female *Erebus odora*. One was somewhat damaged and the other very much injured. The last specimen I put in a large box, covered with screen, under the trees, expecting soon to catch the male As it did not appear within a week I took the female out and found it had deposited two hundred or more eggs, scattered all over the inside of box and screen. The eggs are of the size of cabbage-seeds, green of color, and round. About fourteen days after they were deposited the larvæ emerged. I did not know the food-plant of this caterpillar and, to my sorrow, all died of inanition.

It is an open question to me if the *Erebus odora* does breed in this vicinity. Of the five specimens I captured three are almost perfect and one fairly good. If they are stragglers from the South, could it be possible for them to arrive here in such a good condition? In making the long journey from the South they were certainly liable to be killed by bats or night-hawks or other enemies before they ever reached this northern country. Dr. J. W. Holland writes me that the larvæ feed on cassia in Cuba.

Do not some of the readers of the NEWS know of another food-plant to which the larvæ of the *Erebus odora* take?

On September 2, 1907, I caught a female *Erinnyis ello* on the flowers of the petunia. This insect likely was a straggler from the South, and still it is a perfect specimen.

I will be glad to hear from readers of the NEWS any opinions and experiences with regard to *Erebus odora*, and I would like to know if those insects breed also in our northern climate.—ED. WAS, M.D., Oostburg, Wisconsin.

Doings of Societies.

Meeting of the Brooklyn Entomological Society, October 3, 1907. The President, Dr. Zabriskie, in the chair; fifteen members and two visitors present.

Mr. Dow reported, on behalf of the Committee on Field Meetings, that numerous collecting trips to various localities in New York State and in New Jersey had been made during the past season. The results proved especially gratifying to the younger members, who fully appreciated the efforts of the more experienced collectors, of whom several usually accompanied the expeditions, to make the trips interesting and enjoyable.

The value of field meetings in establishing a closer relationship among members was emphasized, and it was earnestly recommended that they be continued and encouraged during the next season.

Mr. Davis exhibited two boxes of insects collected at Pinlawn, Long Island, among which were two specimens of *Elytroleptus floridanus*, a Floridian beetle, recorded in the East only once before, from Massachusetts. Mr. Davis pointed out that, although Long Island contained many excellent collecting grounds, all orders of insects, excepting, perhaps, Lepidoptera and Coleoptera, had been very much neglected, and in this connection he moved, after a full discussion by the members, that the Brooklyn Entomological Society commit itself to the preparation of a list of the insects of Long Island. The motion was carried.

Mr. Levison, in speaking of his season's work with shade-tree insects, stated that the Tussock moth proved, as usual, the most troublesome pest; the bag-worm and several species of *Datana* occurred locally in large numbers; *Pulvinaria*, sometimes so destructive to maple trees, was not abundantly present this year.

Mr. Dow showed a specimen of *Catocala dejecta*, captured in July near Prospect Park, Brooklyn, and a specimen of *Basilarchia astyanax*, variety *albofascia*, taken at New Brunswick, New Jersey.

Mr. Davis's series of *Basilarchia astyanax* also included an example of the variety *albofascia*, from Staten Island.

Mr. Shoemaker exhibited a number of *Laertias philenor*, obtained from chrysalids, all of which had the tails considerably aborted.

GEO. P. ENGELHARDT, *Recording Secretary.*

Meeting of the Brooklyn Entomological Society, November 7, 1907. The President, Dr. Zabriskie, in the chair; fifteen members present.

Mr. Everett S. Howell, of Brooklyn, N. Y., was elected a member.

In an address entitled "Collecting *Bombus* at Banff, Alberta," Dr. Zabriskie gave an interesting account of a five weeks' trip, undertaken during the past summer in the company of thirty-eight tourists, to the Pacific coast and Alaska, returning over the Canadian Pacific Railroad.

Leaving New York on the 24th of July, stops were made at the Yellowstone National Park, at Portland, and Seattle, where a steamer bound for Alaskan waters was boarded. Visiting Sitka, Skagway, Glacier Bay, Muir Glacier, and Vancouver, the journey was continued over the Canadian Pacific Railroad to Banff, Alberta, where the travelers arrived on the 22d of August and remained for two nights and a day.

Giving due attention to the magnificent scenery, the beautiful flora, and the many other attractions for which this mountain resort is noted, Dr. Zabriskie did not neglect to observe in a general way the occurrence of insects. Considerable snow, still lying on the mountains, had fallen a few days previously; nevertheless, a number of butterflies, principally of the genera *Argynnis* and *Colias*, were seen on the wing. A species of flowering Goldenrod, not exceeding eighteen inches in height, proved very attractive to bumblebees, which, not being very active, could be easily taken with the bottle. Of the forty-seven specimens collected and exhibited, only nine were females. The variation of color and size,

so usual in species of *Bombus*, in this case was most apparent in the maculation; seven species, however, could be readily distinguished.

To further illustrate the variability of this family, Dr. Zabriskie showed a fine series of *Bombus pennsylvanicus*, ranging from the large females to the small workers and males, taken some years ago at Albany, N. Y., from one colony which had built its nest in a bird-house intended for wrens. Sulphur applied on this occasion to the nest, while killing the adults, had no effect on the pupæ, for these matured and hatched some days later.

GEO. P. ENGELHARDT, *Recording Secretary.*

A meeting of the Newark Entomological Society was held September 8th at the residence of Mr. Wm. H. Broadwell, the President in the chair, and twelve members present. Mr. Angelman remarked that he had secured eggs of *Cerura multiscripta*, all of which were black when first laid, and that all published data relative to color described them as gray. Mr. Keller reported the capture of two pairs of *Acronycta elizabeta* Sm., recently described, at Elizabeth, N. J., in August, and a specimen of *A. betulæ* at Mountain View, also in August. Mr. Dickerson reported the capture of a specimen of the former species at Chester.

Mr. Grossbeck remarked that he had taken at New Brunswick, on August 19th, a dozen specimens of the introduced *Vespa crabro*, which were attracted to a light in a room, and asked if any other Aculeates were known to be heliotropic. Prof. Smith said that it was a rare phenomenon, and usually occurred only when the nests of the insects were in some way damaged. This, however, was not the case in this particular instance, as the insects continued to be attracted to light for some weeks afterward and later the nest was discovered unbroken.

Mr. Angelman said that moths were not as common in the early mornings on gas lamp-posts, etc., as in former years,

and attributed the cause to the increase in numbers of the English sparrow.

Mr. Rockwell reported *Thecla titus* common during the past season.

J. A. GROSSBECK, *Secretary*.

The October meeting of the Newark Entomological Society was held on the 13th of the month at the residence of Mr. H. H. Brehme, the President in the chair, and eighteen members present. A vote of thanks was tendered to Prof. J. B. Smith and Messrs. E. J. Smith, of Natick, Mass., and C. F. Harbison, of Dayton, Ohio, for contributions of separates and other papers toward the formation of a new library. Mr. Wm. J. Erhard, of Newark, was elected a member of the Society.

Mr. Otto Buchholz gave an interesting account of his extended trips to Southern California and Arizona during the past summer. In California he found the territory so generally under cultivation that really good collecting ground for Lepidoptera was difficult to find. In Arizona he located at Prescott, in Yavapai County, an exceedingly rocky country, and collected chiefly at an elevation of between six and seven thousand feet altitude. In all between seven and eight thousand specimens of Lepidoptera and three to four thousand specimens of Coleoptera were collected, besides a lot of miscellaneous insects, reptiles, and minerals. Most all of the insect material was taken at light. Sugaring yielded small results, though it had been persistently followed throughout his stay. Collecting on tree-trunks was very poor, practically nothing having been taken in this way, and he attributed the cause to the insectivorous birds, the lizards, and a species of mantid which he found very numerous.

Mr. Buchholz also exhibited light- and dark-colored cocoons of *Hyperchiria pamina*, the difference in shade being due to environment at the time of spinning. Those larvæ left to spin up in leaves produced the usual brown cocoons, while others of the same lot, on being transferred to a box containing bits of white paper at the time indications of spinning were manifested, produced light-colored ones. The fact that

the larvæ were fed throughout their lives on the same food in the same cage, and were yet able to spin differently colored silk, is extremely interesting. Mr. Buchholz said that the eggs of *H. pamina* hatch in precisely twenty-one days.

Mr. Gerstencorn exhibited specimens of hybrid moths produced by mating a male *Smerinthus ocellatus* with a female *S. populi*, both European species. The larvæ of both forms normally pass through four instars, but those of the hybrids passed through only three. The adults parted from copulation on May 14th and egg-laying began at once, the ova hatching on the 22d of the same month. The first moult was made on May 27th, the second on June 2d, and the last on June 8th, the larvæ entering the ground to pupate on the 14th of that month. The first imago emerged on the 8th of July and two others came out shortly afterward; the remaining pupæ did not disclose their imagines, and are passing the winter in good condition.

J. A. GROSSBECK, *Secretary*.

The November meeting of the Newark Entomological Society was held on the 8th of the month at Ferrg's Hall, the President in the chair, and fifteen members present. A vote of thanks was tendered Mr. Wm. Beutenmüller for the presentation to the Society of a copy of his monograph of Sesiidæ, and to Mr. Geo. A. Erhman, of Pittsburg, for papers on Lepidoptera and Coleoptera. Mr. John Koller, of Newark, was proposed for membership and unanimously elected.

Mr. Wormsbacher exhibited a specimen of the recently described *Limenitis ursula*, var. *albofasciata* Newc., together with the type and allied species and varieties. Immediately following the short meeting the twenty-third anniversary of the Society was celebrated by a supper, at which all-around good humor prevailed.

J. A. GROSSBECK, *Secretary*.

The December meeting of the Newark Entomological Society was held in the annex of the destroyed Turn Hall, at 182 William Street. A vote of thanks was extended to Dr. C. J. S.

Bethune for his donation to the library of copies of his own and other publications, and to the Entomological Society of Washington for a set of their Proceedings to date.

Mr. Kircher exhibited a very large and evenly rounded cocoon of *Hyperchiria io* in which five living and well-formed pupæ were closely packed together. One part of the cocoon was slit open to demonstrate that absolutely no partitioning was between any of the pupæ. The specimen was spun in a breeding cage.

Mr. Buchholz showed an elegantly mounted series of the several species of *Rhynchagrotis* which he had taken during the past summer in Arizona.

The officers elected for the year 1908 were as follows: President, Prof. Henry Wormsbacher; Vice-President, George T. Rockwell; Corresponding and Recording Secretary, John A. Grossbeck; Financial Secretary, Herman H. Brehme; Librarian, William H. Broadwell, and Treasurer, Simon H. M. Seib.

J. A. GROSSBECK, *Secretary*.

A meeting of the Heink Entomological Club, St. Louis, Mo., was held January 12th, Mr. C. L. Heink presiding. All but two members present. Mr. Heink exhibited a perfect specimen of *Erynnis leonardus* ♀ which he took last July, three miles south of the city, this being the first record of its appearance here. He also showed cocoons of *Automeris io* and related how he had secured several larvae of the same (20 miles from St. Louis) and bred them. This is believed to be a new record for this region. Mr. Schroers gave an interesting account of collecting Lepidoptera in different parts of Europe. Mr. Kelbly exhibited a new, adjustable spreading board, his own handiwork. He also showed a fine specimen of *P. turnus* ♀ (yellow), something very rare in this locality. Mr. Knetzger exhibited a number of imagos of *S. cecropia*, which he bred, among them an aberration, devoid of the bands on the forewings.

AUG. KNETZGER, *Secretary*.

THE ENTOMOLOGICAL SOCIETY OF AMERICA.

The third meeting of the Entomological Society of America was held at the University of Chicago, December 30 and 31, 1907, in affiliation with the American Association for the Advancement of Science, and other societies. About one hundred were in attendance, coming from as widely remote localities as Maine and California, Ottawa and Louisiana.

On Monday sessions were held for the reading of papers, the program of which follows:

Notes on the Geographical Affinities of the Isle Royale, Lake Superior. (An outline of the relations of the Isle Royale fauna (beetle fauna) to that of Northern North America. General remarks on the major faunal centers based on beetles).—CHARLES C. ADAMS.

Some problems in Nomenclature. (A brief discussion of the validity of names, particularly those bestowed on insect galls and larvæ.)—DR. E. P. FELT.

Stereoscopic Photography Applied to Entomological Subjects. (Exhibition of excellent stereoscopic effects brought about by an ingenious but simple apparatus.)—PROFESSOR F. L. WASHBURN.

Life History and Habits of the Dimorph of *Chaitophorus negundinis* Thos. (Previous knowledge of the dimorph. Comparison with a similar dimorph in Europe. Life history; appearances in summer. Part played in the survival of species, etc.)—JOHN J. DAVIS.

Is Mutation a Factor in the Production of Vestigial Wings Among Insects? (A summary of some observations among insects belonging to various groups, where the evolution of wingless or subapterous species can be traced within a genus or small group.)—CHARLES T. BRUES.

The Sense of Sight in Spiders.—DR. ALEXANDER PETRUNKEVITCH.

External Wing-Buds in Larvæ of Holometabolous Insects. (A discussion of the general subject and recorded instances; and a report of an unrecorded instance.)—DR. WILLIAM A. RILEY.

Notes on the Nervous System of the *Corydalis* Larvæ.—A. G. HAMMAR.

Notes on a Chalcid Infesting Apple Seeds.—C. R. CROSBY.

The Mouth Parts and Phylogeny of Siricidæ.—J. CHESTER BRADLEY.

On Certain Structural Characters of the Genus *Catocala*.—W. BEUTENMULLER.

Is *Vespa borealis* an Inquiline? (An account of finding males and

females of *Vespa borealis* living in the nest of *V. diabolica* on several occasions, apparently on perfectly friendly terms.)—Dr. James Fletcher.

The Entomological Society of America and Its Work.—Henry H. Lyman.

The Habits of the Crane-Fly, *Dicranomyia defuncta* O. S.—Dr. James G. Needham.

The Life History of a Bee-Fly (*Spogostylum anale* Say); the Larvæ Parasitic on the Larvæ of a Tiger Beetle *Cicindela scutellaris* Say. (The eggs are laid in July and August; larvæ on the last larval stage of the host in the spring; when the host makes its pupal cell and the internal parts become semi-fluid, the parasite moults and grows very rapidly, completely destroying the host. (July) The pupa digs toward the surface by wriggling movements of the body and the adult emerges when the surface is reached.) (Title only.)—Victor E. Shelford.

Circumfili in the Cecidomyiidæ. (A discussion of the morphology and taxonomic value of these organs.)—Dr. E. P. Felt.

Ancestral Ephemeridæ from the American Permian Formation. (A group of true Ephemeridæ obtained from the Permian of Kansas. The earliest known true Ephemerids, and with the exception of a few Russian specimens, all that are known from the Permian. They present a distinct early stage in the evolution of the Ephemerid line.)—Dr. E. H. Sellards.

Observations on the Life History and Adaptation of a New Semi-Aquatic Aphid. (Habits, life history, and specialization of *Aphis aquaticus, novus*, found on the water thyme; many remarkable adaptations to its semi-aquatic life.)—C. F. Jackson.

The New Biological Field Station of Cornell University.—Dr. James G. Needham.

Collecting grounds Around Chicago.—A. Kwiat.

Habits of the Larvæ of *Lycaena*.—J. H. Cook.

On Monday evening the annual address was given before the Society by Professor Herbert Osborn, of the Ohio State University, his subject being "The Habits of Insects as a Factor in Classification." The address was followed by a most enjoyable smoker, at which the members of the Society and their friends were the guests of the Entomological Section of the Chicago Academy of Sciences.

At the Annual Business Meeting on Tuesday, the 31st, the following officers were elected:

President, Dr. William Morton Wheeler.

First Vice-President, Dr. John B. Smith.

Second Vice-President, Rev. Prof. C. J. S. Bethune.

Secretary-Treasurer, J. Chester Bradley.

Additional members of the Executive Committee: Dr. James G. Needham, Prof. V. L. Kellogg, Prof. Herbert Osborn, Prof. J. H. Comstock, Dr. P. P. Calvert, Mr. F. M. Webster.

STANDING COMMITTEE ON NOMENCLATURE.

To serve 3 years, Dr. H. T. Fernald.

To serve 2 years, Prof. T. D. A. Cockerell.

To serve 1 year, Dr. E. P. Felt.

COMMITTEE ON NOMENCLATURE.

Dr. Fernald moved, seconded by Dr. Smith:

1. That the Entomological Society of America hereby endorses the Code of Nomenclature, adopted by the International Zoological Congress, as the code which should be used by the members of the Society so far as it can be applied.

2. That cases not covered by this code which may be presented to the Society for consideration, be referred to a standing Committee on Nomenclature, to consist of three members, one member of which shall be elected each year for a term of three years, and the opinion of this Committee on cases referred to them, shall be reported to the Society at the first annual meeting subsequent to their reference to the Committee.

Mr. Bradley moved to amend by striking out the second clause, because entomology should not be treated as distinct from Zoölogy in general, and because the Commission on Nomenclature established by the International Congress of Zoölogy is the sufficient and proper body before which to bring such question for decision.

Dr. Fernald stated that the reports of the Commission on Nomenclature of the International Congress of Zoölogy are greatly delayed by the fact that the Congress meets only once in three years, and by the rule that a question must be presented at least a year before the meeting at which it is to be considered. It was not the intention of the mover that the Committee should act in opposition to or independently from

the Commission on Nomenclature, but that it should be instrumental in voicing the needs of entomology before that body, which should be the final court of reference.

With that explanation, the amendment was withdrawn and the motion passed.

PUBLICATION OF A JOURNAL.

Perhaps the most important act of the meeting was embodied in the following resolutions adopted by the Executive Committee and confirmed by the Society:

1. That the Society undertake a publication to be called "Annals of the Entomological Society of America," to be issued in quarterly fascicles.

2. That it include only papers of importance or marked merit, and that each be issued and bound separately as well as in fascicles, so that each paper may be sold separately.

3. That proceedings of the meetings be included either at the beginning or end of each volume and form one separate, which is to be sent to all members of the Society.

4. That a subscription price of one dollar, in addition to the membership fee, be charged members for the annals, and that the subscription price to non-members, libraries, etc., be $3.00.

5. That an Editorial Board be selected by the Executive Committee, and that this Board shall select one of its members as managing editor, who, with his associates, shall be responsible for the selection of material to be published.

6. That, if possible, someone living in a suitable location and who can undertake the work of managing editor for a series of years, be selected for this position.

7. That details not covered in this report are to be determined by the Editorial Board.

8. That actual publication under the provisions of this report be inaugurated as soon as possible.

It will be seen from the above that all members will receive the number containing the full proceedings of the meetings free, and upon payment of One Dollar the entire annals; while the regular subscription price to non-members will be $3.00.

A resolution was passed limiting the number of Fellows for the present ten per cent. of the membership.

The meeting then adjourned, to meet next December in Baltimore.

During the sessions the Executive Committee elected the following Fellows: Justus Watson Folsom, William Joseph Holland, Clarence Preston Gillette, Lawrence Bruner, Mark Vernon Slingerland, Henry Clinton Fall, Charles Lester Marlatt.

The following were elected members: G. E. Sanders, Urbana, Ill.; G. D. Shafer, Ithaca, N. Y.; Dr. J. A. Nelson, Ithaca, N. Y.; A. G. Hammar, Ithaca, N. Y.; William H. Blatchley, Indianapolis, Ind.; A. B. Wolcott, Chicago, Ill.; E. S. Worsham, Atlanta, Ga.; R. W. Harned, Ag. College, Miss.; Dr. Alex. Petrunkevitch, Short Hills, N. J.; Prof. T. D. A. Cockerell, Boulder, Colo.; Wilmon Newell, Baton Rouge, La.; J. C. Hambleton, Columbus, Ohio; G. Ainslee, South Anthony Park, Minn.; L. H. Weld, Evanston, Ill.; Prof. B. H. Guilbeau, Baton Rouge, La.; J. Zetek, Urbana, Ill.; Prof. S. W. Williston, Chicago, Ill.; C. F. Curtis Riley, Mankato, Minn.; Dr. J. F. Abbott, St. Louis, Minn.; W. S. Fisher, Harrisburg, Pa.

During the sessions an exhibit of entomological specimens and materials was open for the inspection of those interested. The titles of the exhibit are given below:

Some Enlarged Photographs of Fossil Insects.—CHARLES T. BRUES.

New Devices in Economic Entomology.—W. E. HINDS.

Stereoscopic Pictures of Insects.—PROFESSOR F. L. WASHBURN.

Dimorph of *Chaitophora negundinis* Thos.—JOHN J. DAVIS.

Case of Fall Webworm Moths (*Hyphantria textor* and *H. cunea.*) Showing Range of Variation of the Latter; Inflated Larvæ.—HENRY H. LYMAN.

Entomological Specimens and Equipment; Interesting Insects from Mexico, Cuba, and Indo-Australia; New Species of *Dynastes,* etc.—DR. G. LAGAI.

Stereoscopic Photographs of Oryssidæ Taken with the Camera Attachment to the Zeiss Greenough Binocular Microscope. Mouth Parts of Siricidæ.—J. CHESTER BRADLEY.

Stereoscopic Photograph of a Tenebrionid Beetle Taken with an Ordinary Camera Using an Eccentric Diaphragm.—C. R. CROSBY AND J. C. BRADLEY.

J. C. BRADLEY,
Secretary-Treasurer.

EXCHANGES.

Not Exceeding Three Lines Free to Subscribers.

☞ These notices are continued as long as our limited space will allow; the new ones are added at the end of the column, and only when necessary those at the top (being longest in) are discontinued.

Wanted, by purchase or exchange, Bibliog. Amer. Econ. Ent., Part 4, in good condition.—E. A. Klages, 82 Belvidere Street, Crafton, Pa.

I am desirous of acquiring by purchase or otherwise the rarer species of North American as well as exotic Endomychidae, also all literature (particularly papers by Crotch, Horn, LeConte, etc.) relating to the family not in my possession.—L. B. Walton, Kenyon College, Gambier, Ohio.

Wanted—Cocoons and pupae for cash or in exchange.—American Entomological Co., 55 Stuyvesant Ave., Brooklyn, N. Y.

I am desirous to send interesting "Lamellicornia" from Ecuador. I would like identified species in exchange.—Prof. Francisco Campos R., Guayaquil, Ecuador (Apartado No. 484).

Wanted to Exchange—Missouri butterflies with collectors in the north, east, south and west.—Aug. Knetzger, 3822 McDonald Avenue, St. Louis, Mo.

I will exchange a fine selection of Missouri *Catocala* for others, from other States.—Ernst Schwarz, 6310 Newstead Ave., St. Louis, Mo.

I have *P. modesta, H. chersis, H. luscitiosa, P. achemon, A. bicolor, A. angelica. At. jorulla* pupae to exchange for *P. pandorus. Dar. versicolor, Cal. astylus* and other North American pupae—V. Musil, 1118. So. Trumbull Ave., Chicago, Ill.

Lepidoptera.—I have for exchange bred specimens of *Papaipema nitela, nebris, frigida, imperturbata, cataphracta, impecuniosa, marginidens, Nonagria. oblonga* and *Achatodes zaea.* Would like specimens of same genera.—F. E. Moeser, 238 Guilford St., Buffalo, N. Y.

I have one copy of Baron de Rothschild and K. Jordan's "Classification of Sphingidae" (part 57, Genera Insectorum), with beautiful plates. Will exchange same for North American moths.—G. Chagnon, P. O. Box 186, Montreal, Can.

I have for exchange Chrysalids of *Regalis imperialis, hylaeus, modesta, ajax, troilus, cresphontes, andria* and eggs of *Catocala piatrix, vidua* and perhaps others. Wish *Catocala* eggs and imagoes.—R. R. Rowley, Louisiana, Mo.

Wanted *Pachybrachys.*—I am trying to unsnarl the species of this genus and need much larger series than I now have. I will buy specimens from any part of North America.—Fred. C. Bowditch, 164 Rawson Road, Norfolk Co., Brookline, Mass.

Wanted for cash or exchange.—Large and showy North American insects of *all orders*, beneficial and noxious insects, specimens illustrating life histories.—Write to Dept. Natural Science, The Kny-Scheerer Co., 225-233 Fourth Ave., New York.

Lepidoptera for exchange. Would like Californian species not in my collection.—Erval J. Newcomer, Palo Alto, Cal.

Lepidoptera.—Pinned, in papers, complete data, in perfect condition for exchange. Would prefer to exchange for living pupae.—J. Russell, Digby, Nova Scotia.

Lepidoptera for Exchange.—*Catacola badia, antinypha, praeclara,* pupae of *luna, io, imperialis, cecropia* and *polyphemus.*—Jacob Duelks, Box 317, Stonington, Conn.

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Luna Cocoons.—I have a number of living *luna* pupae of other North American Lepidoptera or papered Lepidoptera new to my collection.—B. R. Bales, M.D., Circleville, Ohio.

I have pupae of *Lapara coniferarum* and *Cith. regalis* to exchange for *Theclas, Lycaena* and *Chrysophanus* not in my collection.—H. H. Brehme, 74 13th Ave., Newark, N. J.

I have pupae of *Papilio turnus* and *cresphontes, Sphinx luscitiosa, chersis, Ampellophaga myron, Triptogon modesta, Paonias myops, Smerinthus germinatus, Ceratomia undulosa* and *P. guinquenmaculata.* Want other pupae in exchange.—John Kytlica, 1347 So. Scoville Ave., Oak Park, Illinois.

Geometridae wanted, named or unnamed, particularly from the Northwest, Arizona, Montana, Idaho, North Carolina, Texas and Florida. Write first giving quantity and price. Will buy or exchange. Wm. H. Broadwell, 209 Plane St., Newark, N. J.

Would like to exchange 80 named species, many specimens of European Coleoptera (many nice sp. Carabus, Calosoma, etc.), for 50 named sp. of Coleoptera from western states.—C. Harnach, 527 W. 16th Street, Chicago, Ill.

A few pairs of that interesting beetle *Ignotus aenigmaticus* Slosson for any of the following Cremastochilus 5913, 5915, 5916, 5917, 5918, 5919, 5921, 2924, 5928.—L. H. Joutel, 164 E. 117th St., New York,, N. Y.

Cocoons of *T. Polyphemus* and *Samia promethea* to exchange for *Samia cynthia Attacus crizaba* or others.—J. J. Henneberger, 10114 Ewing Ave., Cnicago, Ill.

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Wanted. Named or unnamed Elateridae and Buprestidae from all parts of North America. Will give named Coleoptera in exchange.—C. O. Houghton, Delaware College, Newark, Delaware.

I wish to exchange Chrysalids of *E. imperialis, P. ajax. troilus, turnus, D. hylaeus* and many others for exotic material.—G. H. Hosenfelt, 3656 Salena St., St. Louis, Mo.

Pupae of *Papilio ajax and troilus* for exchange, also a few specimens of *Anthocharis Pima and Stella*, from Arizona, Imagos.—N. Weil, Calhoun, Ky.

Lepidoptera for exchange from 1907 with data and identified. Also chrysalids of *P. turnus, cresphontes* and *troilus.*—F. Malkmus, 4398½ Tibson St., St. Louis, Mo.

Will collect in any order and supply European material in exchange for Lepidoptera, especially cocoons and pupae.—J. W. H. Harrison, 181 Abingdon Rd., Middlesboro, England.

Luna Cocoons.—I have a number of living Luna pupae to exchange for other living pupae or papered Lepidoptera new to my collection.—B. R Bales. M. D., Circleville, Ohio.

Will exchange living pupae of *E. imperialls, P. ajax troilus turnus, D. hylaeus* and many others for exotic material.—Geo. H. Hosenfelt, 3656 Salena St., St. Louis, Mo.

Wanted, the coming season for cash or exchange, a large number of living pupae, strong and healthy, of all Diurnal Lepidoptera and Noctua (*Papilios, Actias, Attacus*), etc. Kindly communicate with J. Sever, 335 E. 49th Street, New York City.

I desire to buy original collections of beetles from North, South or Central America.—Fred. C. Bowditch, 164 Rawson Road, Norfolk Co., Brookline, Mass.

Wanted.—A large number of all species of *Plusiotis*, *Prionus californicus*, *Derobrachus geminatus*, *S cessus*, *julianus*, *Dynastes granti*, *Tetracha carolina*, *Pasimachus mexicanus*, all species of Cincidelidae and all other big beetles (Coleoptera) for cash or exchange. Kindly communicate with J. Sever, 335 E. 49th Street, New York City.

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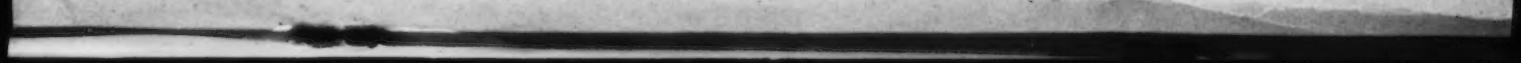

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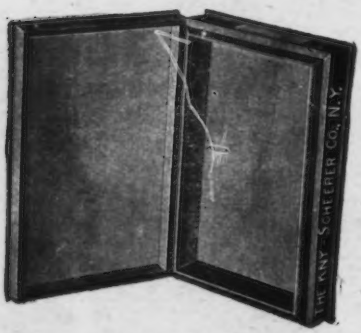

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